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This magazine is dedicated to the interpretation, in authentic and popular form, with extensive illustration, of geography in its widest sense, first of Canada, then of the rest of the British Commonwealth, and other parts of the world in which Canada has special interest.

The British standard of spelling is adopted, substantially as used by the Dominion Government and taught in most Canadian schools, the precise authority being the Oxford Dictionary as edited in 1929.

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Percé, with its giant rock severed from the mainland at high tide, is situated at the extremity of the Gaspé Peninsula. The painting is by Albert Cloutier and reproduced by courtesy of the Quebec Government. It is of interest in relation to the article, "Pageantry of Percé," by Alice Wetherell, on page 271.

Canadian Geographical Journal

The Mormons in Canada

By DONALD W. BUCHANAN

OUT of the midst of a typical prairie town in southern Alberta, a town of prosaic streets and shops and grain elevators, rises something amazing, something almost incongruous in that setting,—a great white temple. In Quebec one sees everywhere the spires of stone churches which look protectingly down upon the humble village cottages clustering about their base, but this Mormon Temple in Cardston is something altogether different. The Mormon architect who designed it is said to have seen the Temple in a dream, and as one stands before it the explanation does not seem improbable. It makes one think of a tale in the Arabian Nights; some powerful Genie has transported a magnificent palace from the heart of an Oriental city to the outskirts of a lowly hamlet. The transcendent temple and the stolid town typify in a measure the mixture of qualities that go to make up one of the most singular elements in the population of the Dominion. Perhaps nowhere else as among the Mormons, does one find the spiritual and the material so interwoven, not in an individual but in an entire people; so intimate a combination of religion and keen, shrewd business sense.

The Mormon Temple, however strange it may appear in a modern western Canadian town, owes little to either European or Asiatic traditions. It is essentially of this continent, though not of this age. It suggests, in its massive

proportions and the impressive dignity of its straight lines, one of the ancient Maya monuments of Central America. Around the raised gardens of the upper courts blue spruce relieve the dazzling brilliance of the granite walls, while below a park of willows and poplars and playing fountains shuts out the heat of the western noon-day. About the temple are miles upon miles of golden wheat, and in the western background the shining peaks of the Rockies.

This temple is the central shrine of the people of the most northern outpost of the New Zion of the Latter Days Saints in America. It was erected about 10 years ago at a cost of almost \$1,000,000, by the Apostles of the Mormon Church of Utah, for the glory of God and the future benefit of the 10,000-odd disciples of the church who, now, as loyal British subjects, live in and till the soil of some of the most fertile valleys of southwestern Alberta. Here, almost 50 years ago, the first pioneer patriarchs came

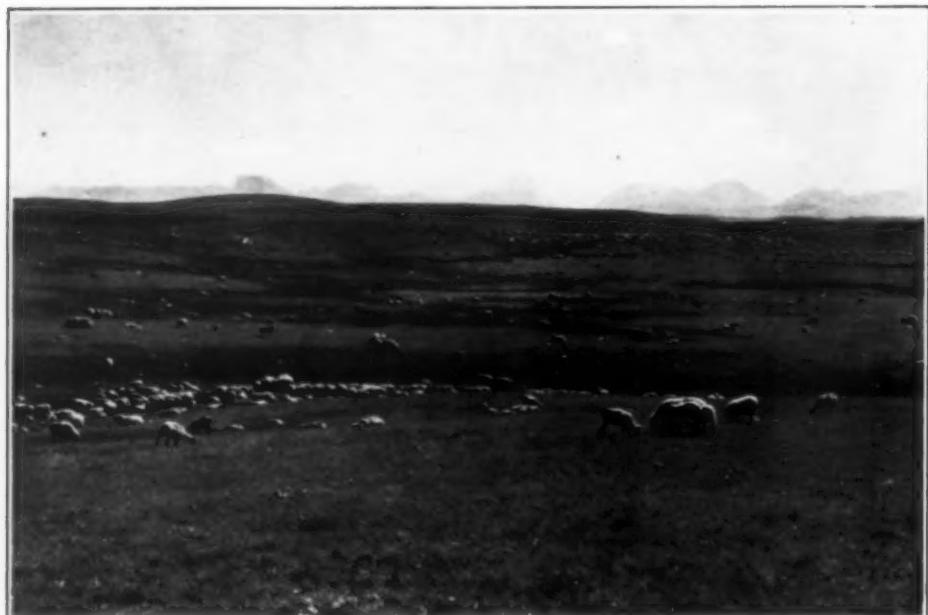
from Utah to squat in an unowned region of long grass and cattle ranges. To-day they have turned it into a land of wheat fields and dairy herds, watered almost from end to end by that same system of irrigation with which they first made to blossom the deserts of Utah.

The story of the Mormons coming to Alberta is the untold romance of Canada. Persecuted and harassed for a religion which they believed to be the latest revel-



DONALD W. BUCHANAN

who is a son of Senator Buchanan of the Lethbridge Herald, was born at Lethbridge, Alberta, in 1908, and educated at the local schools and University of Toronto, from which he received the degree of B.A. (Modern History) in 1930. He was awarded the Wilder Fellowship from the same institution, and is now at University College, Oxford.



Sheep on the foothills of the Rockies, southwest of Cardston, Alberta, pioneer Mormon centre of Alberta.



Out of such a barren land as this, subject to drought and long thought to be of no agricultural value, these pioneers have created, through irrigation, a prosperous agricultural community. This photograph shows one of the main irrigation ditches, with bridge in distance, near Magrath, Alberta.



*A group of those who will help to carry on the work of the building up of the west
is here seen at the Cardston (Mormon) Sunday School.*



*Last residence of Charles Ora Cord, pioneer of Cardston and patriarch of the
Mormon Church, erected July 1900.*



M. A. Lowry, Mormon Bishop, his wife and family of 13, taken on his farm at Taylorville, near Cardston.

ation of Jesus Christ, and imbued so with the fire and fundamentalism of the Old Testament and the apostolic vigour of the New that they seemed as fanatics to their more worldly neighbours, the early leaders of the Mormon Church were able to build an amazing home for themselves in Utah. Believers in prophecies, dreams, and divine inspirations, they accepted the ancient Word as it was written, and hence, through no lust of the heart, they found themselves committed to follow that ill-omened revelation given forth by their founder and prophet, Joseph Smith, which sanctioned plural marriages. Thus in 1882, with the public opinion of the United States against them, those few amongst them, for it was always a few, who lived with more than one wife, found themselves the victims of retroactive legislation making polygamy a crime. These men had become in the law outlaws and criminals. One of them, Charles Ora Card by name, who had been born in New York State and brought up on a farm in Michigan

and who still had the flame of wanderlust in his veins, decided with others to move on into some other country, probably Mexico. First, however, he sought the guidance of the president of the church, at that time John Taylor, a native of England who had been converted to Mormonism in Ontario. After meditation and prayer the president told the small party that it had been revealed to him that British North America, with its better name for justice, and not Mexico, was the place for future settlement.

So, as scouts in search of new homesites, Charles Ora Card and a few friends, in the summer of 1886, set out on a trip of exploration through the mountain valleys of British Columbia. Hearing of the great buffalo plains to the east, they rode on over the passes to Calgary and down south through the land of the ranchmen to where the town of Clarendon is now situated. Here the countryside appeared perfect for farming but it was cattle country and the cowboys told the prospective sod-breakers to move on.



A High School graduating class, Cardston. All the instructors at this High School and all the students, with the exception of four, are Mormons.

At Macleod, then the headquarters of the North-West Mounted Police, the pioneer searchers discovered that a ranching lease had fallen vacant in a district immediately to the south of the Blood Indian Reserve. It happened that the only surveyed line in that whole section was the south boundary of the reserve, so with a map having this line well marked upon it, the horsemen rode south until they came to where the survey posts crossed the pleasant little foothill stream of Lee's Creek. Here at the edge of the Indian lands, within sight of the Rockies, and at a point only 13 miles north of the International boundary, they decided that they had found the promised land. The grass was luxuriant and blew high and wide in the wind; the foothill flowers made a carpet of colour. The men set off without further delay to bring the welcome news to their friends awaiting them far to the south around the Great Salt Lake.

Next year, in the spring of 1887 a little cavalcade of Latter Day Saints rode up through the State of Montana,

crossed the border, were welcomed by a few neighbouring ranchers, and, squatting on the present site of Cardston, hurriedly erected a few crude log huts and, sowing a crop of oats in the spring managed to reap it in the fall before the winter snows arrived.

It is well to remember that at this time there was not a farm in southern Alberta. It was a land of great and isolated ranches, with Macleod a little village, Lethbridge a struggling hamlet, and the new transcontinental line of the Canadian Pacific Railway hundreds of miles away.

Cardston, for such the new settlement was named after its founder, was laid out in a fashion that has been followed by all the other little Mormon towns in southern Alberta. Each settler wanted a few acres around his home for a pasture and an oat field for his cow. As a result the towns became collections of widely-scattered little farm plots, each surrounded by a row of well-planted and carefully cultivated poplars or maples. During the first decade of its history,

the Mormon colony remained fairly stationary in size. Small numbers of pioneers, mostly from old Utah stock, came in each year and took farms out from Cardston, and the little foothill hamlets of Mountain View and Leavitt came into existence. Crops were usually good, and in the first strenuous years of land-breaking, when money was scarce, welcome work was found in building the fences for a nearby ranch.

In the meantime, the Mormons adhered to the marriage laws of Canada

or in Utah. The old generation has died out and the new, without looking back on the former practice as a sin, has yet accepted the monogamous code freely and whole-heartedly and without any reservations.

Up to 1898 south-western Alberta remained almost as the first pioneers had found it. In that year a new era of development began under the direction of Charles A. Magrath, then Land Commissioner of the Alberta Railway and Coal Company, and now Chairman



Mr. and Mrs. Joseph Y. Card and family, Cardston.

and those who had extra wives left them back in Utah. But in 1890 Utah had grown up and was almost ready for statehood, and it was generally felt amongst the church leaders that the old patriarchal polygamy of the pioneers was unsuited to the new conditions; so in that year the president of the church issued a declaration which frowned upon polygamy. Since then, or to be more exact, since 1904, when plural marriage was made a church offence, polygamy has not been practised in either Alberta

or the International Joint Commission as well as of the Hydro Electric Power Commission of Ontario. Mr. Magrath found that he had on his hands fully 1,000,000 acres, which his company had received as a subsidy for building railway lines from Lethbridge to Medicine Hat and from the former place south to the international boundary. The latter line actually ran from Lethbridge to Great Falls, Montana.

The land was what is called semi-arid. It was subject to drought, and the ranch-

men had scoffed at the idea of its having any value as an agricultural prospect. Mr. Magrath realized that before he could sell this land he must provide it with irrigation. He knew that the arid plains of Utah had been made fertile through irrigation; he had seen the Mormon farmers raise wheat and forage crops with success in their new Canadian homes; and he felt assured that they could give him the practical experience necessary for building up an irrigation scheme in south-western Alberta.

he would have found, were Latter Day Saints from Cardston, working and toiling for land script to the amount of an acre a day. Further along, where the new towns of Magrath and Raymond were rising from the barren plains, he would have discovered the labourers to be men only recently arrived from Utah, from whence they had been attracted by the lure of unbroken soil to be irrigated and tilled and acquired for the mere toil of a summer's ditch-digging.



Mrs. Catherine Pilling, aged 91, and daughters.

In the spring of 1899 headgates were constructed on the St. Mary's River, at Kimball, a Mormon settlement south of Cardston and immediately north of the international boundary, and the building began of more than 100 miles of main irrigation canal. A horseman riding across these wide grassy plains, as yet unbroken and unfenced, any time in that or the succeeding summers, would have seen long lines of teams ploughing and scraping and a small army of men equipped with shovels, turning up great ditches across the virgin prairie. These,

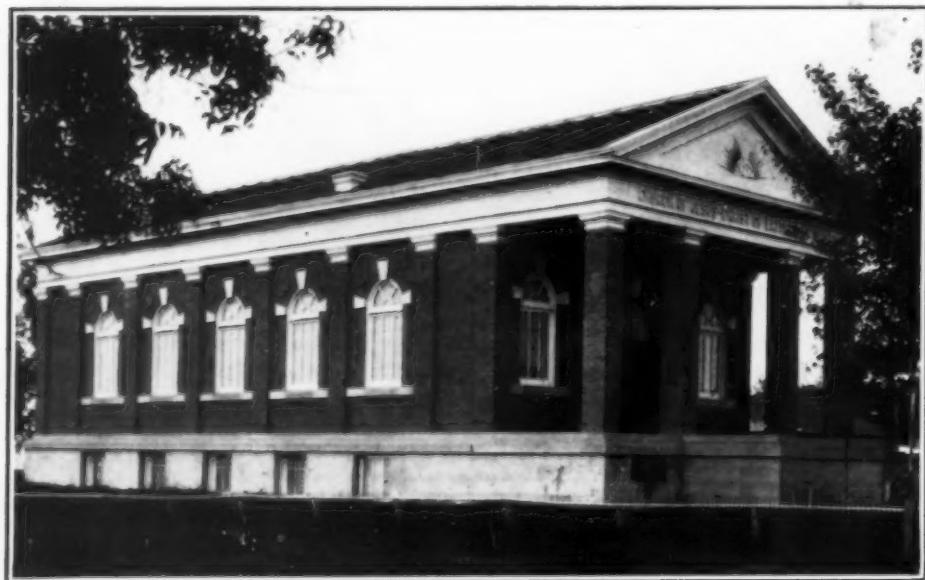
By the opening of the century the land was, as one says in the west, under the ditch. That was almost 30 years ago. To-day approximately 150,000 irrigable acres are being farmed in this irrigation project which is now operated by the Canadian Pacific Railway. Cardston, Magrath (named for C. A. Magrath), Raymond, Stirling, have all developed into flourishing towns with populations averaging close to 2,000 persons, and the prosperity of the city of Lethbridge has been secured on the sound basis of mixed farming, stock-raising, and irriga-



Charles Ora Card, who 50 years ago came with a few companions from Utah to found a new home for the Mormons on the cattle ranges of southern Alberta. To-day the towns of Cardston, Raymond and Magrath bear witness to his wisdom and foresight, while 19,000 adherents of the Church of Jesus Christ of the Latter Day Saints carry on the work he began.

tion. The barren prairie has become verdant with the green of the willows and poplars which spring forth in profusion around each farmstead. Indeed, the town of Magrath is to-day so surrounded by foliage that it has earned the name of the "Garden City". At Raymond there is a \$1,500,000 beet-sugar factory and beets are raised in immense quantities all over the district. While wheat and forage crops, especially alfalfa, are the mainstay of the irrigated farm, hogs, sheep, cattle, and poultry, also add to the family income, and dairying is proving profitable. But not all the land is irrigated nor can it be reached by the water. Here the dry land farmer raises his golden fields of wheat, and then out beyond the broad wheat acres in the recesses of the foothills or on the slopes of the prairie ridges the old cattle and sheep ranches still linger.

The original Mormon settlers to-day have been reinforced with thousands of recruits from both Utah and direct from the mission fields of Britain and Scandinavia. They have spread up into Lethbridge and out into the Taber irrigated district to the east, until to-day they number more than 10,000 in a possible 30,000 population in that part of the federal constituency of Lethbridge lying



Latter Day Saints ward chapel at Lethbridge, Alberta.

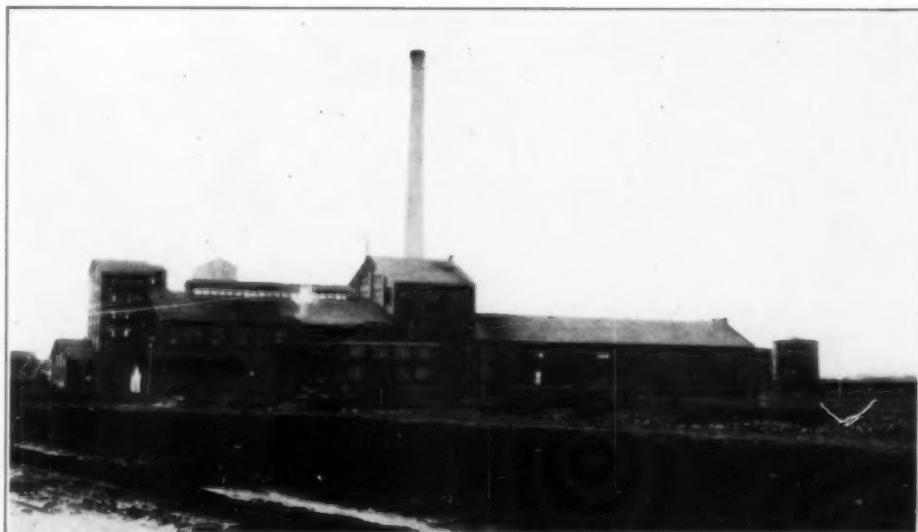
to the south of the Old Man River. Ninety-five per cent of them are Canadian citizens and they are well-travelled, for about 50 per cent of the adult church members have, according to the custom of their religion, at some time or other in their lives been on some foreign mission. Their main centres are still along the C.P.R. line through Raymond to Cardston and on to the new United Irrigation District to the west of the Blood Reserve. But even here there is now a liberal admixture of "Gentiles", as outsiders are called. Yet that valley of the St. Mary's River, with the Milk River Ridge and its high grass lands as a border to the south, and the well-watered and shadily-forested foothills as a frontier to the west, is still the true domain of the Mormons.

They have chosen their Canadian homeland well. This stretch of land has never known a total crop failure; on dry soil and irrigated alike the rains have always fallen, while the less fortunate semi-arid lands to the east have gone through their periodic cycles of drought and hard times.

Most of the recent progress of this district has been due to those land-settling efforts begun by C. A. Magrath and so ably followed up in later years by the C.P.R. and the Dominion Govern-



Edward J. Wood, Cardston, President of the High Council of the Alberta Stake of Zion, Inc. To this division of the church is entrusted the buying of property for the development of the community.



In southern Alberta the main agricultural development is the sugar-beet. To cope with the growth in beet production this \$1,500,000 plant of the Canadian Sugar Factories, Limited, has been built at Raymond, Alberta, the output of which for 1929 was in the neighborhood of 25,000,000 pounds of refined sugar.



Headgates of the Canadian Pacific Railway irrigation canal at Kimball, south of Cardston. By means of this project approximately 150,000 acres of land are brought under cultivation.

ment with its efficient Experimental Farm at Lethbridge. Yet the Mormon church has contributed its due share. This it has been able to do because of its peculiar but effective economic make-up. We have to remember here that the Church of

Jesus Christ of the Latter Day Saints is, as one writer has put it, the only church that is a typical outgrowth of American life. In Utah it has placed its Zion on earth, but in spirit it is simply the old New England puritanism in a new and

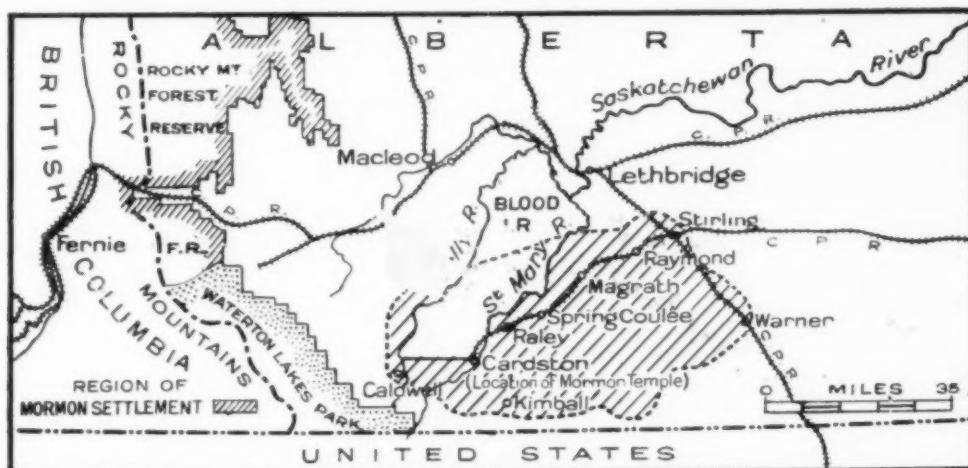


A field of sugar-beets at the jail farm, Lethbridge. To the Mormons Canada owes the introduction of this lucrative industry.

even more American form. Idealism, absolute biblical fundamentalism, and a belief in the approaching millenium, for the which the faithful alone are prepared through having accepted the latest revelations of God as revealed in the Book of Mormon, are all coupled with the practical pioneering desire to put their terrestial house in order. They have attempted to organize within the church the whole life of the people. Even dancing and simple pleasures are encouraged under church auspices so that the youth may be preserved to the fold. The church, itself, is one great lay organization from president down

High Council of the Alberta Stake of Zion, Inc.", with E. J. Wood, of Cardston, as president.

The worldly goods of the church, indeed, have always been under able stewardship. With those hard pioneering beginnings in early Utah, it was only natural that this economic aspect of the church should have been placed well to the front. As surplus funds have accumulated they have been invariably invested in ways that might promote community development. Thus the most powerful beet-sugar corporation in the United States, the Utah-Idaho Sugar Company, was founded by Mormon



Sketch map showing the Mormon settlement in Canada.

through a circle of 12 apostles to the presidents and bishops of each individual "Stake". There are three of these "Stakes", or territorial divisions, in Alberta, the Alberta Stake at Cardston, the Taylor Stake at Raymond and the Lethbridge Stake of Zion at Lethbridge. For spiritual purposes these are further subdivided into "Wards," each under the supervision of a lay bishop.

The economic organization, with its voluntary but almost general system of tithing, is under the guidance of each stake president with the ultimate control in the hands of the president of the church at Salt Lake City. The principal property-owning division of the church in Canada is chartered under the high-sounding title of "The President and

capital so that beet-raising might become a profitable venture in the irrigated districts of Utah.

In Canada, the "Church, Inc." in 1906 bought at a price of over \$500,000, about 65,000 acres between the Waterton and Belly Rivers to the west of Cardston and in the lee of the mountains. These and other smaller tracts of land they managed to settle in short order with Mormon families. As a colonizing agent, the church has been eminently successful, for it has always made it its duty to keep in the closest touch with the new settler. If he failed the church was always ready to re-establish him, or in the last resort to find him some more suitable occupation. "There are no paupers in our Church", is the proud claim of the Latter Day Saints. Com-



Main Street, Cardston, Alberta. Where but a few years ago was only tall grass, to-day is this enterprising town built by the Mormons.



Unloading beets at the sugar factory, Raymond. Note the acres of beets piled to the right of the elevated tracks.



From all over the surrounding country the Mormon farmers bring their sugar-beets to these dumps to be loaded into cars and taken to the factory at Raymond.



Spreading the water from a field lateral. One of the phases in the irrigation development which has changed the once arid lands of Alberta into fruitful farms.

menting on this remarkable economic structure C. A. Magrath once described Brigham Young as "the greatest colonizer this continent has ever known".

To-day most of that 65,000 acres has, through the efforts of the settlers, become the United Irrigation District, an enterprising young irrigation project with over 36,000 acres under water, all financed and run without any govern-

ment or corporation assistance. The C.P.R. has recently extended a branch line into this territory to serve Glenwood and Hillspring, the two flourishing little towns of the district. The remainder of the land is still owned by the church and is operated by "The President and High Council of the Alberta Stake of Zion, Inc." as a "Church" ranch. Here great herds of sheep and cattle graze upon the



What irrigation has meant to Alberta may be seen from the beautiful trees and shrubs surrounding the Experimental Farm at Lethbridge.



Charles A. Magrath, to whose enterprise and foresight much of the credit is due for the irrigation system which has meant so much to the Mormons and others who live in the dry belt of Alberta.

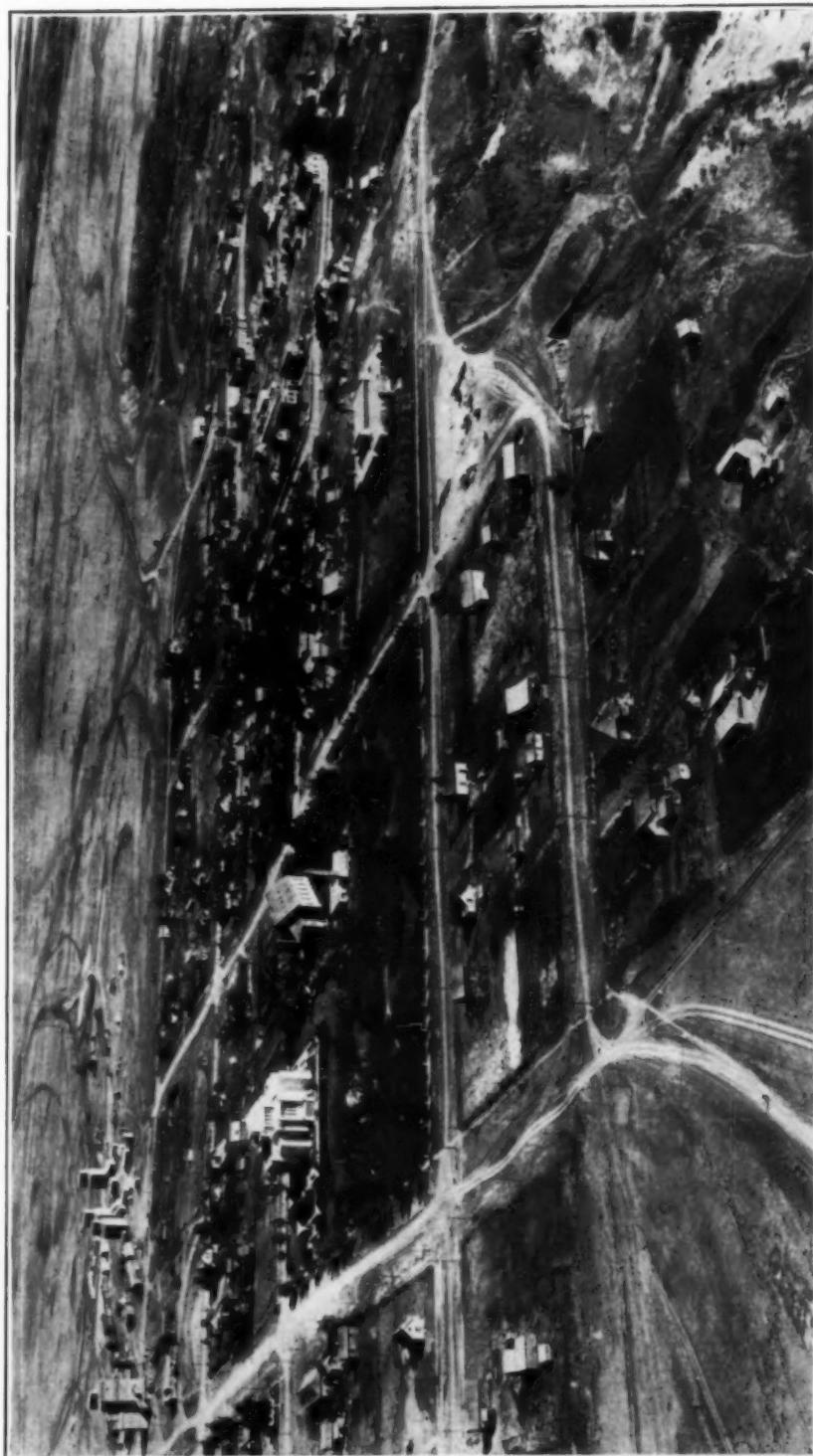
open grass slopes. Indeed, it is estimated that the church ships 500 cattle a year from this immense ranch. Moreover at present the church authorities are promoting the prosperity of the com-

munity by farming out 500 head of young steers annually amongst the Mormon families of the district for feeding and the raising of choice baby beef. The beet-sugar industry, however, is the main agricultural development of the Mormons in southern Alberta. The pioneer was Jesse Knight, a Utah millionaire and philanthropist, and a man of great shrewdness and force of character. Mr. Knight, on his own responsibility, undertook with Mr. Magrath, acting for his company, to erect in 1902 at Raymond—called after Mr. Knight's son—a \$500,000 beet-sugar factory. Mr. Knight acquired a considerable area of land, and undertook to have 3,000 acres ploughed for beet culture within a few months. He was as good as his word. Mormon settlers flocked from far and near, and for a distance of six miles their ploughs could be seen breaking the virgin prairie.

The factory was operated with fair success for several years, but then ran into impossible conditions. Wheat prices had reached such a high level that it was no longer profitable for the farmers to raise sugar beets, and the venture failed. However, in 1925, largely because of the presence of the Latter Day Saints in the irrigated districts, the Utah Idaho Sugar Company was induced to build the



Another view of irrigation. A main lateral running through a wheat field.



An aerial view of Cardston. A few short years ago the Mormons came to Alberta seeking new homes. Their industry has made them an important factor in the development of the Canadian West.



"The Great White Temple," Cardston, Alberta. This magnificent edifice, the centre of the Mormon religion in Canada, stands as a monument to the faith and enthusiasm of that little band who in 1886 set about the building of a New Zion of the Latter Day Saints in America, a new home in a new land.

present plant at Raymond. The result has been to make southern Alberta a great beet-raising country. Indeed last year the refinery at Raymond received over 100,000 tons of sugar-beets for fall production. This tonnage would net approximately 25,000,000 pounds of refined sugar.

It is sometimes easy to exaggerate. Yet it was Charles Ora Card, the Mormon pioneer, who raised the first

crop of wheat between Lethbridge and the border; it was at Cardston that mixed farming in place of "wheat-mining" was first practised with vigour and ambition in southern Alberta; and it is at Cardston, moreover, that the first co-operative creameries and cheese factories in Alberta commenced back in the eighties. The Mormons have indeed been excellent settlers, and have added an element of strength to western Canada.

The Pageantry of Perce

By ALICE WETHERELL

THE pageantry of Perce began long before Jacques Cartier, seeking shelter beneath the great arched rock, considered it the portal of the New World. True Cartier's planting his first white cross a few miles up in Gaspe Bay, drew up the curtain on the historic drama of the white man in what was soon to be New France, but Perce's pageantry began long before this first white man came in July, 1534, it began long before the Gaspesians, now known as the Micmacs, roamed these shores and mountains. It began away back in that very early period of earth's story when a great river and a sea conspired together to submerge the land then lying where now we find the Gulf of St. Lawrence and the Baie de Chaleur.

But the pageantry burst forth with its first spectacle of grandeur when the Great Sculptor had raised the debris from the very depths of these great waters, pile upon mighty pile of limestone, jasper and red rocks, and with His chisels, through the ages, fashioned those miracles of form and colour which the French new-comers endowed with names of ancient gods and goddesses, and saints and kings! The Pic d'Aurore, Mont Sainte Anne, Mont Louis, and all their sister mountains, but for the red-ridged limestone rock, the rock incomparable, almost 300 feet in height, pierced through with towering arches, they could think of no name grand enough to do it justice. With true honour to its dignity, they gave it the simplest name of all, Île Perce it became, and its fame soon caused this name to be applied to the whole district.

It is almost four centuries since Cartier named the Baie de Chaleur and then came back and sheltered near Île Perce. But ever since his time the

historic pageant far out in the gulf and on the bay and on Île Perce's very shores has passed within sight of the tip of Mont Ste. Anne, 1,200 feet above. Few ships of any kind, in all the centuries, went by without stopping somewhere along those shores for wood or for supplies of fresh water. For Mont Ste. Anne, from 60 or 70 miles out in the gulf, was each newcomer's first glimpse of the New World.

To Perce from Saint Malo came Monsieur Prevert to meet Champlain and tell him of copper found by Indians at Minas; and of that strange Indian-eating monster, the size of a ship, the shape of a woman, from whom he, himself, had heard most blood-curdling sounds as he passed by her island just out of Chaleur Bay. To Perce Frontenac came in 1689. Intendent Talon came to Gaspe Bay, broke off a piece of rock and found the silver that Indians had reported. Here too, in 1629, one of the famous Kirke brothers captured the hiding boats laden with supplies from France for the starving colony at old Quebec.

Along the shores near Perce came Sir William Phipps in 1690, and burned what privateers had left of Perce's first white settlement. The great Wolfe himself came in 1759 to Gaspe Bay, remaining there for many days while reluctantly he sent officers to burn the French villages along the coast. After he had offered up his glorious life in saving New France for England, still one more dramatic scene of those wars was enacted in full light of Perce. French ships with belated help of horses and supplies for Quebec's soldiers, on hearing, just off Gaspe Cape, that English ships had already gone up the river, suddenly changed their course, sailed past Perce and sought shelter far up the Baie de



ALICE WETHERELL

was born in St. Mary's, Ontario, and educated at Strathroy Collegiate Institute, following which she took a course in Social Service at University of Toronto. She is a free-lance writer.



H. V. Henderson photograph.

Bonaventure Island, which has been set apart by the Dominion Government as a bird sanctuary, is the habitat of thousands of gannets.



H. V. Henderson photograph.

A gannet or Salan goose on the nest. These birds have made Bonaventure Island one of the show-places of Canada.

Chaleur near Restigouche. Past Perce, too, went the pursuing British fleet from Louisburg and coming upon the enemy in their retreat,—fought the last battle of the Seven Years' War.

But the sea supplied not the only pageantry through all those centuries. Long after Mont Ste. Anne first reared her proud head behind the natural amphitheatre of Perce, there came to

customed to pass all masts up and under full sail through the principal one of these openings."

Almost a century ago the huge arch crumbled and transformed itself into the split which we see now, and just one large arch now remains. But everyone who views the miracle of Perce Rock with the red and orange and the lavender painted there by the setting sun, turns



Laying out cod to dry at Robin's plant on South Beach, Perce. The Charles Robin Company came here in 1766, the first syndicated trading company in North America after the Hudson's Bay Company. Robin, Jones and Whitman still carry on the fisheries and have their chain of stores along these coasts.

those shores and those hills that most poetic of all Indian tribes, the sun-worshipping Gaspesians now called the Micmacs. Le Clercq, the Recollet priest, when he first met these sun-worshippers might easily have found at least one point of common interest, and that in their admiration for the great red rock, which he describes at that time as "pierced open to such a degree in three or four separate places that boats are ac-

into the same sort of sun-worshipper as did a company of hard-headed scientists a few years ago. From India, Australia, from China and from Africa they came, lured by Perce's fame for rare fossils, and rocks which told of fascinating stories yet unknown. But they were not prepared for the sun's work. The sun was setting. One by one, at Cote Surprise, where the first full view of Perce Rock is thrown upon the screen,



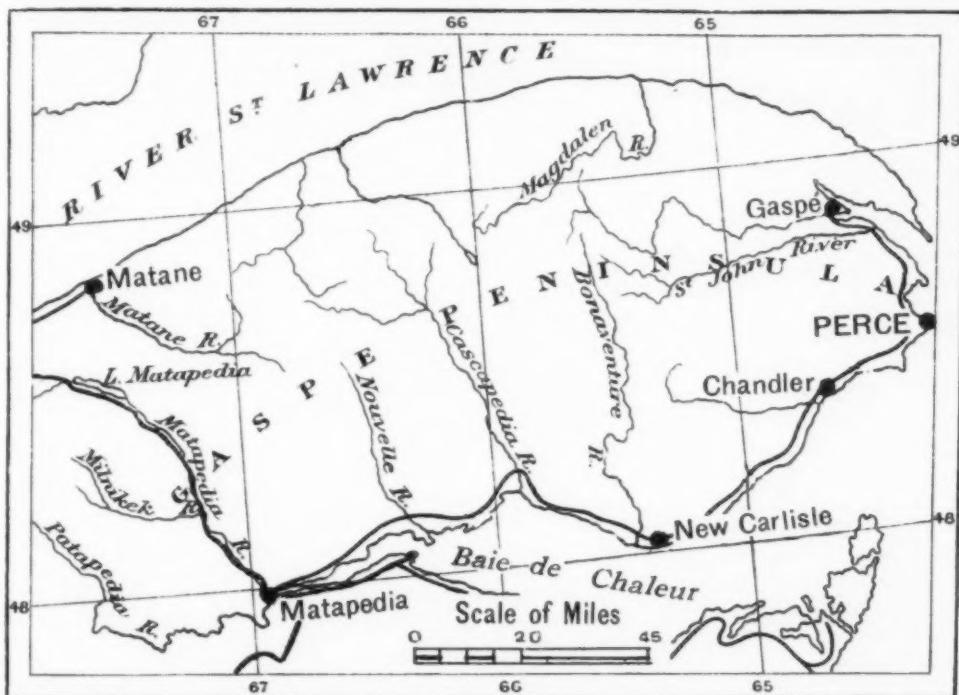
The pierced rock from which the Island of Perce received its name.

they dismounted from their carriages, and, with eager cameras, tried to record the picture that entranced their eyes. They all turned poets with the Micmacs, and at least temporary worshippers of Old Sol.

As spectators from the amphitheatre of Perce, our glance, too, is first and ever drawn to the great red jagged rock. But in our line of vision, upon the peak of Mont Joli, just a stone's throw from Perce Rock, we see also a white cross marking the mountain where once stood

Intendant Talon to grant his company the right of fishing and trading with the Indians, and of admiral over the fishing fleet. This developed into the Seigneurie of Ile Perce.

Bringing with him a half dozen families, to the place now known as Barachois, near Perce, he built a house for fifteen persons, stables and storehouses. Cattle, poultry and pigs he brought too, and cultivated a large farm and garden. At what is now called North Beach, he had a fishing station, with a lodg-



*Coming to Perce one seems to be wa king into a page of history, so far removed
is it from our modern idea of living.*

the first mission church of the Recollets in Gaspé, built in 1676, and dedicated by one of the two Recollets who came with the first white settlers to these parts.

It was 1672, Nicolas Denys, joint governor with Charles de La Tour of all of Acadie, was growing old at his seigneury at Nipisiquit, (now Bathurst, N.B.) To all the Gaspe shore, then part of his possessions, he had already forfeited the rights, for letting lapse his interest in the fisheries, when his nephew, Pierre Denys de la Ronde persuaded

ing house, a house for two Recollets and storehouses for the fish. Here, at extreme low tide, at certain seasons of the year, by digging in the sand, you may come upon traces of a foundation eight feet by eight, which is thought to be some part or other of this early fishery establishment, and first white settlement in Perce.

The pageantry of North Beach, Perce is, to-day, not so very different from what it was in Denys' time. It begins by the light of the stars, when the fisher-



Moonlight view of Perce Rock, silhouetted against the gray sky.

men go out to 'jig for squid,' their precious bait. It lasts until the fleets come home in the late afternoon, and longer. And to-day those eager young tourists who follow the fishermen through the entire day's work will find the same sort of codhooks in use out in the boats as were used in Denys' time, and on shore as they chat in the French tongue to the Canadian fishermen, who bring in a catch of 1,200 pounds in one small boat, they will find them using the same

hooks for spearing the fish from boat to splitting-table and the same knife for slashing the fish from head to tail. Then, quicker than eye can follow, they may watch them throwing livers, heads and bones into separate vats before they are taken off in horse-drawn carts. While the livers go to be prepared for vitamin-filled oil, the heads and bones are taken to make fertilizer, 'pour grain,' as one wee lass explained. And still other carts are carrying off



To enjoy the beauty of Bonaventure Island and carry away a never-to-be-forgotten sight, one must sail around it by moonlight.



The Murailles or Walls which rise from the water to a height of 600 feet in concave fronts, and which are believed to be the remains of a mountain which once spanned the bay.

loads of the split fish to be salted, laid on netted 'flakes' or on the pebbly beach to sun and dry.

So the fishing pageant at old Perce has gone on for centuries and will go on as long as foreign markets such as Brazil and Spain, Portugal and Italy, vie with the United States in demanding cod from Gaspe's shores, and as long as the terraced rock formation so near to Perce's

coasts remain a breeding-place for cod. To the house that Denys built for two Recollets at Perce there came one specially for the French, and Father Le Clercq to minister to the Gaspesians. A touching scene in Perce's pageant opens when Le Clercq gave his first speech to try to win the trust and the affection of the Indians. Le Clercq piled high a large birch-bark plate with



Perce rock, the sentinel of Gaspe, standing out black against the horizon, presents a picture not easily forgotten.



Out of the sea at Perce have come fish that have made the name of this part of Quebec famous the world over.

small heart-shaped cakes made of peas and flour from Denys' garden, and fried in moose fat.

Over these small hearts he placed a huge heart to envelope all the others. Then he explained the symbolism to his guests. The large heart was the heart that nature had granted him. The small hearts, enveloped by the large, represented his affection for each one of them. Then he gave them each a small heart with these words:

"My brother, I give you my heart. You will dwell and be encamped for the future in my heart," explaining to them that this was to their material and spiritual advantage.

The poetic childlike hearts of the Gaspesians were immediately won. Le Clercq was adopted into the tribe as the

chief's own foster-son, and invited to stay all winter in their wigwams and learn their language.

The next great scene is six years later. Le Clercq has taught the Micmas all their prayers and made them a written language out of pictures to suit their sentence-words. He is now going back to France. To the little chapel at Ille Perce the Indians stream in crowds to hear his farewell address. Each one carries a small prayer-book containing the new written hieroglyphics that their Father has invented for them, bound by their own fond hands in birch-bark and decorated with beads and quills, according to each individual taste.

Soon, amid the screeches of the gulls and cormorants are heard the Father's intonings in thank-offering. Then come the chants of the Micmacs, "a harmony of voice so sweet and pleasing," their priest has written, "that our French were sensibly edified." The sad crowd straggles out, a few French and many Indians. Each one of his flock Le Clercq embraces. He distributes farewell presents of tobacco, little mirrors,



H. V. Henderson photograph.

The rocky ledges of Bonaventure Island where sea-birds build their nests.

knives and needles, the small glittering trifles which he knows they love so much. Now three French sailors hurry up the hill to carry down the Father's baggage. But the Gaspesians claim that honour, in order to show the French their devotion for their teacher. At their desire, Le Clercq chooses from among them three young hunters to take his mattress, blanket, and his casket of church ornaments to the waiting boat. Then comes the chief and makes a long and tender speech. As his adopted son he tells Le Clercq that it is his duty to remain with his foster-father. It required long persuading to make them understand that he must leave them for a time at least. And it was a very sad Le Clercq who had to sail away from his beloved and loving flock as they stood fondly cherishing their last glimpse of him.

There is still another scene in the Gaspeian pageant. It was 1690. There had been a Recollet church at Bon-



Sailing around Bonaventure Island one glimpses the great gannet cliffs where the birds sit in ranks at attention, except for the busy sentinels flying above them.



Even the women-folk have their part in the battle of obtaining a livelihood from the sea.

venture Island with Pierre Denys' son a priest, while Father Jumeau had taken Le Clercq's place at Perce's church on Mont Joli. Six French ships lay at anchor at Ile Perce. For a century before and for long after Pierre Denys' time, there sailed from Honfleur and Dieppe, from Boulogne and Calais adventurous fishermen, coming sometimes twice a year, returning to sell fish in European markets.

From the French ships lying there at anchor now, the captains and the crews had gone to smaller fishing boats. Suddenly, as they hauled in their heavy catch of cod, they saw two frigates flying English colours coming up the bay. To the woods they fled for shelter as soon as they could land their clumsy crafts. To the kindly spruces, too, the eight or ten settlers fled, those who had come with Pierre Denys. The privateer ship from New York, manned with Dutch and French renegades and a few English



For centuries the beaches, made of pebbles large as a man's fist, have been kept free from weeds for the spreading of the codfish in the sun to dry.

found Ile Perce a deserted place when it arrived. In their destructive fury the maddened pirate crew marched up to the church on Mont Joli, trampled down the images and shattered with gun-shot the sacred pictures. Then they set fire to the church and went out and tore down every cross except that high on Mont Ste. Anne.

Eight days they stayed about Ile Perce doing what destruction they could

find to do. The fishing buildings at North Beach they destroyed, the homes they sacked and burned. Then they made their way to Bonaventure Island three miles off, and, after burning Denys' church, they offered up a sheep in mock sacrifice.

Ile Perce lay in ashes when they sailed away. Father Jumeau and those who had watched from the woods returned and once more erected the fallen crosses.



The horse helps at Perce, where not so long ago the ox was used.



Fishing at Perce. The boatload of fish and the splitting table right at hand. In boats such as the one shown here a catch of perhaps 1,200 pounds will be brought in at North Beach.

But in two days along came Phipps with seven ships, tore them down again and completed the destruction of any small remains of the first white settlement. The settlers, through the woods, at last made their way to Biscayenne longboats and thus to Quebec.

Three quarters of a century go by before the next spectacular scene at Perce. It was 1766. The ships that came this time were different from any others. There was on each a round black

ball, two feet in diameter, to show that they belonged to the Charles Robin Company of Jersey. They brought apprentices and managers for their new stores and fisheries. Already a few separate fishing establishments had sprung up along the coast, but Charles Robin soon had a series of chain stores, amalgamating with those already there established. This was somewhat like the Hudson's Bay Company, and has left its influence in as many ways. For



Perce rock showing the split. At one time this split was an arch, and through it barges could pass under sail.

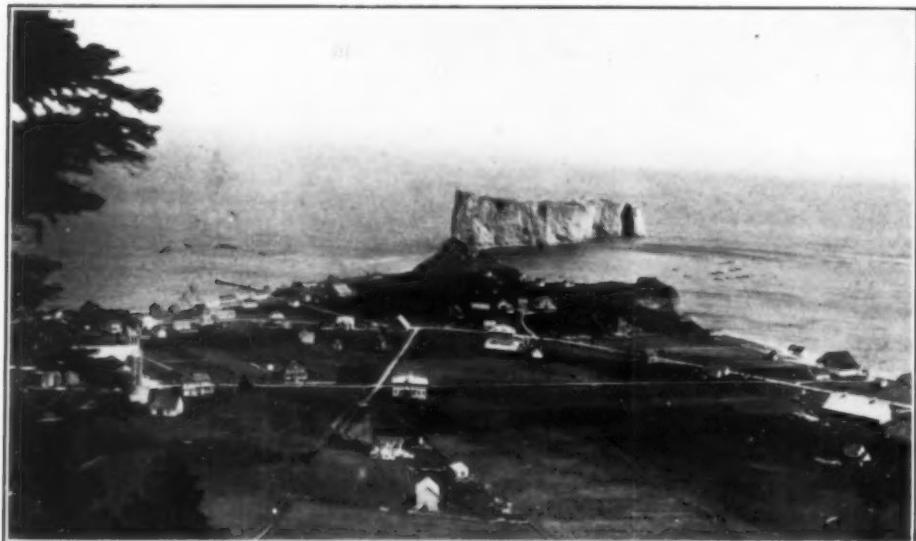


The descendants of Perce, old and young, never tire of watching the artists as they strive in vain to capture the beauty of nature.

years the lads came out from Jersey, and are still coming out, to serve apprenticeships, and after four years they returned to Jersey to decide whether they would enlist in this service for another term of years. Grown to manhood they might marry, but the wives remained at home.

Many lonely graves of Jersey men one finds in graveyards along Gaspe's

shores, but not of Jersey women or of children. Of late years it has been very different, since the country was fit for women's occupation. Now one finds many managers of prosperous hotels or of fishing companies worthy rivals of the parent company, all bearing Jersey names, who have come out originally with the company which now bears the



The village of Perce and its great arched rock. Set in the valley between Mont Ste. Anne and the shore cliffs, Perce is surrounded on all sides by a panorama that never fails to excite admiration.



In those same old-fashioned boats the fishermen bring forth from the sea fish that have made Perce famous.

name of Robin, Jones and Whitman. All about Perce village one finds beautiful homes which these Jersey men have built with gardened fronts. And in these homes are precious old books, jugs from Portugal, furniture from Jersey, and old sea chests thrown up from wrecks. For the Robin Company ships when they went abroad with fish returned with precious relics that the captain's eye might fancy. And shipwrecks must have numbered in the thousands in the centuries gone by. As

if to remind one of the wrecking coasts of Gaspe there presides over Perce village, and has presided for many many years, Theodat, a black-whiskered, green skirted, axe-wielding giant carved of wood, once the figurehead of some wrecked ship or other.

First and last and always in Perce's pageant we see Perce Rock. And Perce rock is much more than a nest of precious fossils which scientists may travel the whole world to find. Even Sir William Logan, founder of the Geological Survey



Theodat de Perce. The black-whiskered, green-shirted, axe-wielding giant, carved of wood, once the figure-head of some wrecked ship or other.



The "Grande Crevasse" or Great Rift, several feet wide at the top, only a few inches at the bottom, and 200 feet deep, is but another of the many wonders of nature on display in and around Perce.



A scene in Perce, where nature has with lavish hand bestowed here gifts that excite admiration and astonishment.



Perce village, showing Perce rock at high tide, with North Beach in the foreground, and Bonaventure Island in background.



A spread of fish at South Beach, Perce, with Mont Ste. Anne in the distance.



A view of Perce mountains through a rift in the rock.



H. V. Henderson photograph.

The work of splitting fish goes on to-day as it has gone on for centuries, undisturbed by the screeches of the gulls.



The same sort of pageantry is seen to-day on Perce's shores as in Denys' time, the same language, the same hooks for spearing fish from boat to splitting table, the same table, the same knife for slashing that deft stroke from head to tail.

of Canada, who spent that first season of 1843 in unravelling Gaspe's mysteries and to whom there stands a tablet in a park donated by the Charles Robin Company, even he with eyes for ancient secrets could not but marvel at the swooping swaying, screaming, cooing gulls and cormorants and murres that waken one at daylight but repay this slight annoyance with the pageantry of

their whole day. Both Perce Rock and Bonaventure Island, three miles away, are government bird sanctuaries. On Perce Rock, besides the gulls, kittiwakes and guillemots, as many as 2,000 cormorants rear their young. Bonaventure Island gives home to many more varieties and numbers. Murres and auks and puffins too breed there; and its 8,000 nesting gannets have made it the great



Pilgrims still wend their way up the path to the cross on Mont Joli. It is thought that the old Recollet church dating back to about 1686, stood on the level ground just below the slope. Near this ancient site human bones have been dug up, indicating the presence here of an old cemetery.



To-day one may see at North Beach, Perce, buildings, still used in the fishing trade, where Pierre Denys de la Ronde in 1672, with two others, were granted fisheries, and built a fishing station, lodging house, house for two Recollets and a storehouse for the fish.

show place in North America for such a colony, besides being the only one of two, the largest, and the most accessible.

There are different ways of reaching Perce. There is the steamship line from Quebec. There is the Canadian National Railways' line, skirting the Baie de Chaleur with all its quaint Scotch, French-Canadian, and Acadian villages with names, each one, a story in itself. There is the Quebec highway with towering rugged cliffs. But if you would

carry away the grand climax of a perfect trip, only the birds of Perce or of Bonaventure Island can give you the secret of the leaving. Each year when they have reared their young and taught them how to earn the very rich living that Perce provides, they fly high in the air and, without one glance behind, soar off. But, of course, the birds of Perce have another secret, too. They always come back another year, to spend the whole summer.



The gulls are always there on Perce's beaches.



Western Canada Airways photograph.
A general view of Vancouver's business district and portion of the waterfront looking east from the Court House.

The Port of Vancouver

By TOM MACINNES

BECAUSE of near-at-hand and varied beauty of its mountain and forest scenery, and pleasant summers to be enjoyed along its several sea-fronts, Vancouver is in the way of becoming a great tourist resort. Even through its winters of salt winds and rain it is not without unique attractions for such as come to it from the northern United States and central Canada. Vancouver, before long, may hold its own as a pleasure city with any other on the continent. But in that is not its destiny.

Vancouver as a city and Vancouver as a port are two different affairs. As a port it cannot be interfered with by provincial or municipal authorities, being entirely under the administration and direction of the Dominion Government acting through the Harbour Commission. The citizens of Saskatchewan and Alberta have an equal interest with the Pacific coast in Vancouver as a port.

It is the port which makes the city. Its strategic commercial position, linking all western Canada so economically with the Orient and with Europe; the advent of transcontinental railways; the work of the farmers of Saskatchewan and Alberta; and the manner in which harbour and terminal facilities have been developed and administered by the Vancouver Harbour Commission; all combined have gone far to justify the opinion of Roger W. Babson, American economist, expressed to a gathering of business men in 1929, that before this century ends one port on the Pacific coast of America will be the trade leader of the Pacific as New York leads the trade of the Atlantic, and that port may be Vancouver.

The port of Vancouver includes all of Burrard Inlet, together with the outlying

waters from Point Atkinson to Point Grey. Before British Columbia entered Confederation there were two saw-mills established on Burrard Inlet, the first on the north shore and the second on the south shore, about two miles across from each other. The city grew around and from the saw-mill site on the south shore, the site where now the Vancouver Harbour Commission has its headquarters.

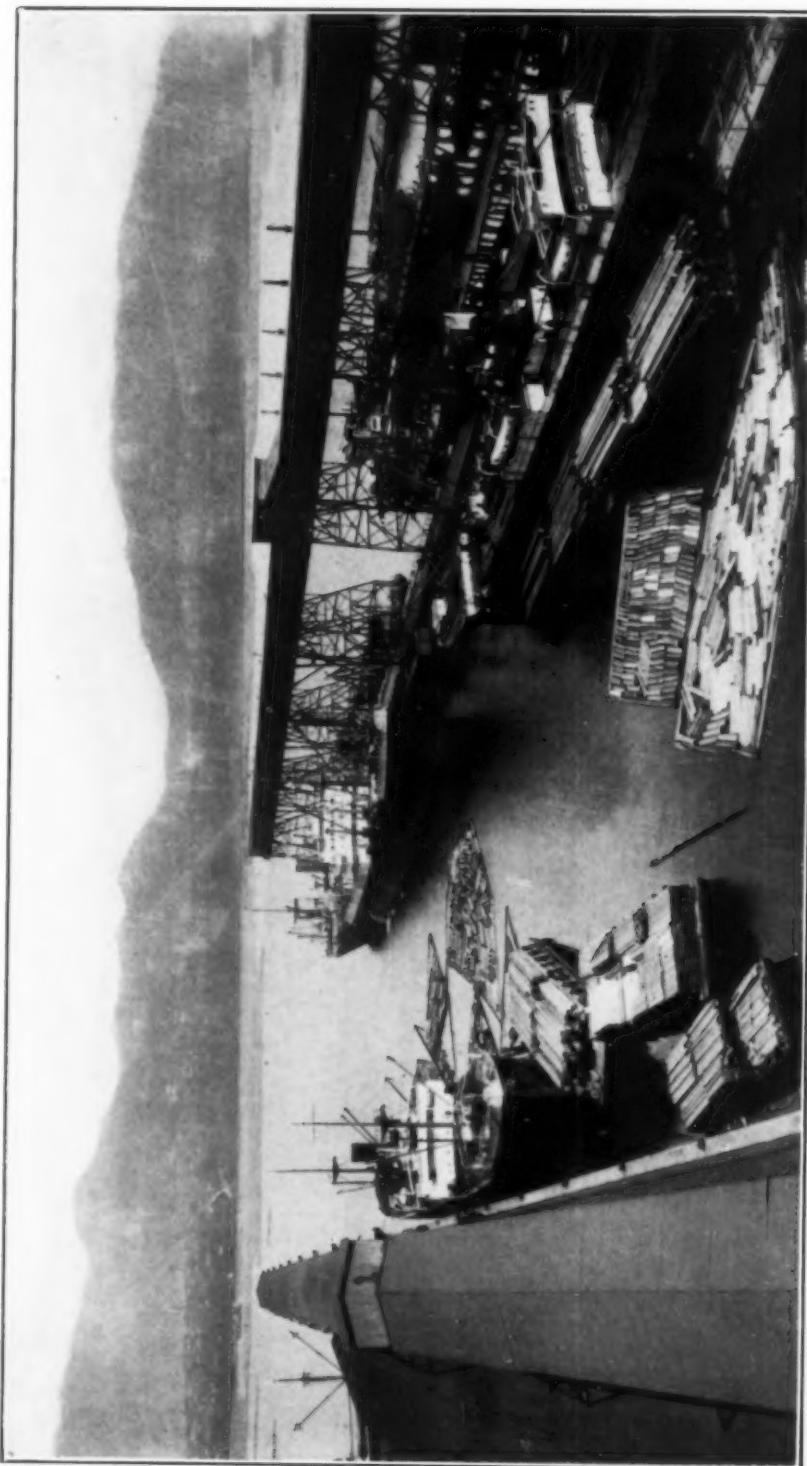
Burrard Inlet was discovered by the Spanish navigator, Jose Maria Narvaez, in August, 1791, and named by him "Boca de Florida Blanca." Narvaez was in command of the schooner "Saturnina" at that time; having been sent forward by his superior officer, Lieut. Francisca Eliza, after the latter's entry on an exploring expedition through the Straits of Juan de Fuca in May of the same year. Narvaez also discovered Nanaimo, naming it, jointly with Departure Bay, "Bocas de Winthuysen"; Howe Sound, naming it "Boca de Carmelo"; and Fraser River, naming it "Rio Blanco."

Burrard Inlet was entered by Captain George Vancouver the following year, but he gave it scanty attention because of having, as he wrote at the time, "a grander object in contemplation"; that is to say "Fretum Anian," or "North-west Passage." Vancouver rowed into the inlet in the afternoon of June 13th, 1792, and rowed out again at four o'clock the next morning, naming the place Burrard's Channel, and showing it on his chart as Burrard's Canal. As to this locality Vancouver's chart is quite inaccurate, except for the North Arm and Port Moody, branches of the inlet, into which he did not enter, but whose proper contours and proportions he obtained from the findings of Cayetano Valdes,



TOM MACINNES

who is the author of "Amber Lands," "Roundabout Rhymes," "Teaching of the Old Boy" and "Port o' Vancouver." was born in Dresden, County Kent, Ontario, and educated at Trinity College School, Port Hope, and St. Louis College and High School, New Westminster. In 1889 he graduated in Arts from Toronto University and was called to the Bar of British Columbia in 1893.



Leonard Frank photograph.
Ships loading with lumber and wheat, Port of Vancouver.



Canadian Pacific Railway station and pier D, Granville street, Vancouver, British Columbia.



Canadian National Railways photograph.

This same primeval forest, that not so long ago knew only the soft tread of the Indian, to-day as Stanley Park is traversed in all directions by well-paved motor roads.

who examined them under direction of Galiano a few days after Vancouver left. It is peculiar that Captain Vancouver, usually accurate in such matters, should have been so inaccurate about the one place from which his name was eventually to be made familiar to all the ports of the seven seas.

About 60 years passed before any Europeans again came to bother the peace of the inlet.

From 1857 to 1863 Captain George Henry Richards and Mr. Daniel Pender, R.N., in the paddle-sloops "Plumper" and "Hecate," made a complete survey of the British Columbian coasts and



Canadian National Railways photograph.

Much of the grandeur of Vancouver's outdoor life lies in her trees. The little girl with out-stretched arms affords some idea of the size of this old cedar tree.

tidal waters. Included in the early part of their work in 1859 was a survey of Burrard Inlet; the first since the tracing made by Valdes in June, 1792.

Following the first shipload of coal out of Nanaimo, and down to Victoria on the "Cadboro" in September, 1852, both Hudson's Bay men and independent prospectors were on the look-out

for more coal-mines on the sea-front. In time reports were received from Indians that the same combustible black rock was to be found at a certain part of Burrard Inlet. In 1859 a private syndicate sank a few shafts on that part of the south shore of the Inlet which came to be known generally as Coal

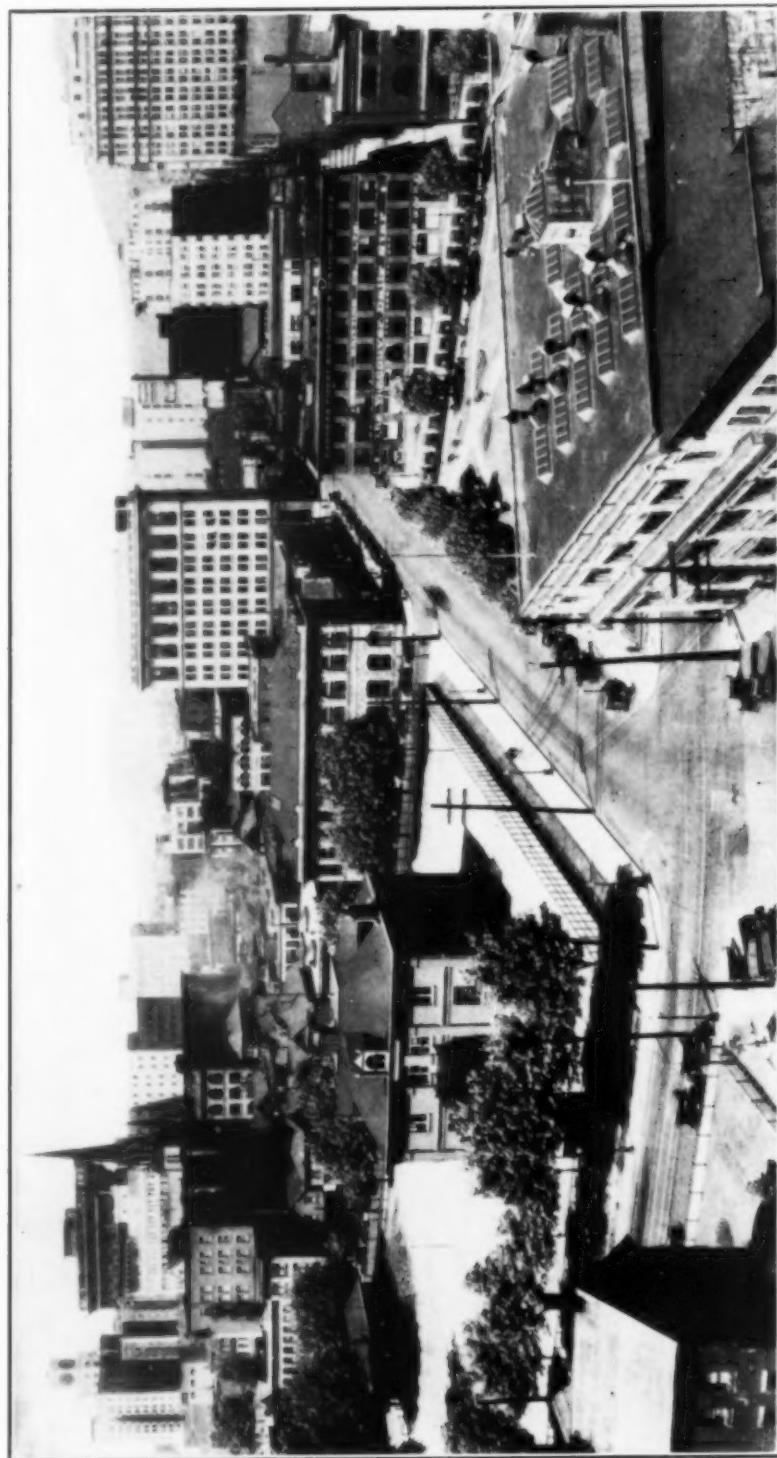
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Coal Harbour as it was in 1886, showing the Lost Trees of Deadman's Island.



Up in the air over Shaughnessy, Vancouver, British Columbia.
Canadian National Railways photograph.



View of the "Province Newspaper Building," Vancouver, British Columbia.
Canadian Gov't Motion Picture Bureau photograph.



An aerial view of Vancouver's wholesale area looking towards the residential district known as Grandview. The small mountain in the centre is Little Mountain, about which the city of Vancouver is built.

Western Canada Airways photograph.



Canadian Gov't Motion Picture Bureau photograph.

Capilano Creek, showing Suspension Bridge, North Vancouver

(Continued from page 293)

Harbour. The syndicate included the late Walter Moberly, who earlier in that year, as Superintendent of Public Works, had begun clearing the site and erecting the first official buildings for the new mainland capital founded by Col. Moody of the Royal Engineers and Sappers, called Queensborough, and later New Westminster. The coal seams uncovered at Coal Harbour by Moberly

and his associates were too narrow to be worth mining, and the syndicate project was abandoned.

In June, 1862, a young Englishman, John Morton, recently arrived from the Old Country, noticed a sample of coal in Tom Cunningham's hardware store in New Westminster. Morton had come of a family of potters, and he made inquiries concerning the sample, not because he wanted coal but because at



Road through Stanley Park, Vancouver, British Columbia.

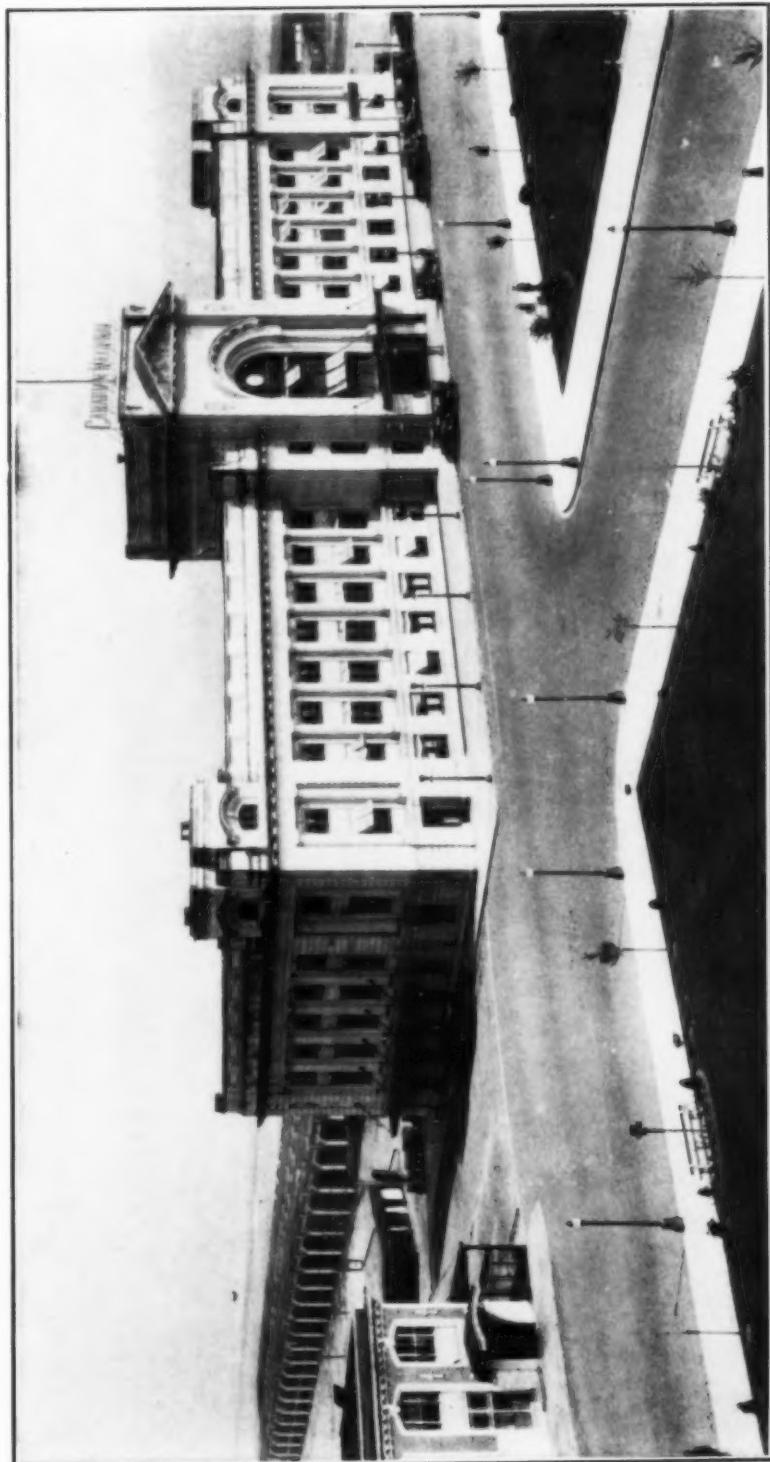
home he had always associated the best potter's clay with coal seams, and he thought the same rule might apply in the new land. He had in mind to acquire a fine holding of clay for himself. Cunningham put him in touch with an Indian who had brought the coal over from Burrard Inlet. Morton and the Indian took the trail, which later became the Old Douglas Road, through the dense primeval forest to the inlet,

camped for the night where the well known hotel of Maxime Michaud was built in after years, and proceeded next morning by canoe to Coal Harbour. Morton did not find the clay he expected. But he liked the lay of the land, and became the first settler, acquiring title to much of what is now the west end of the city of Vancouver. With his cousin, Sam Brighouse, he finally extended his

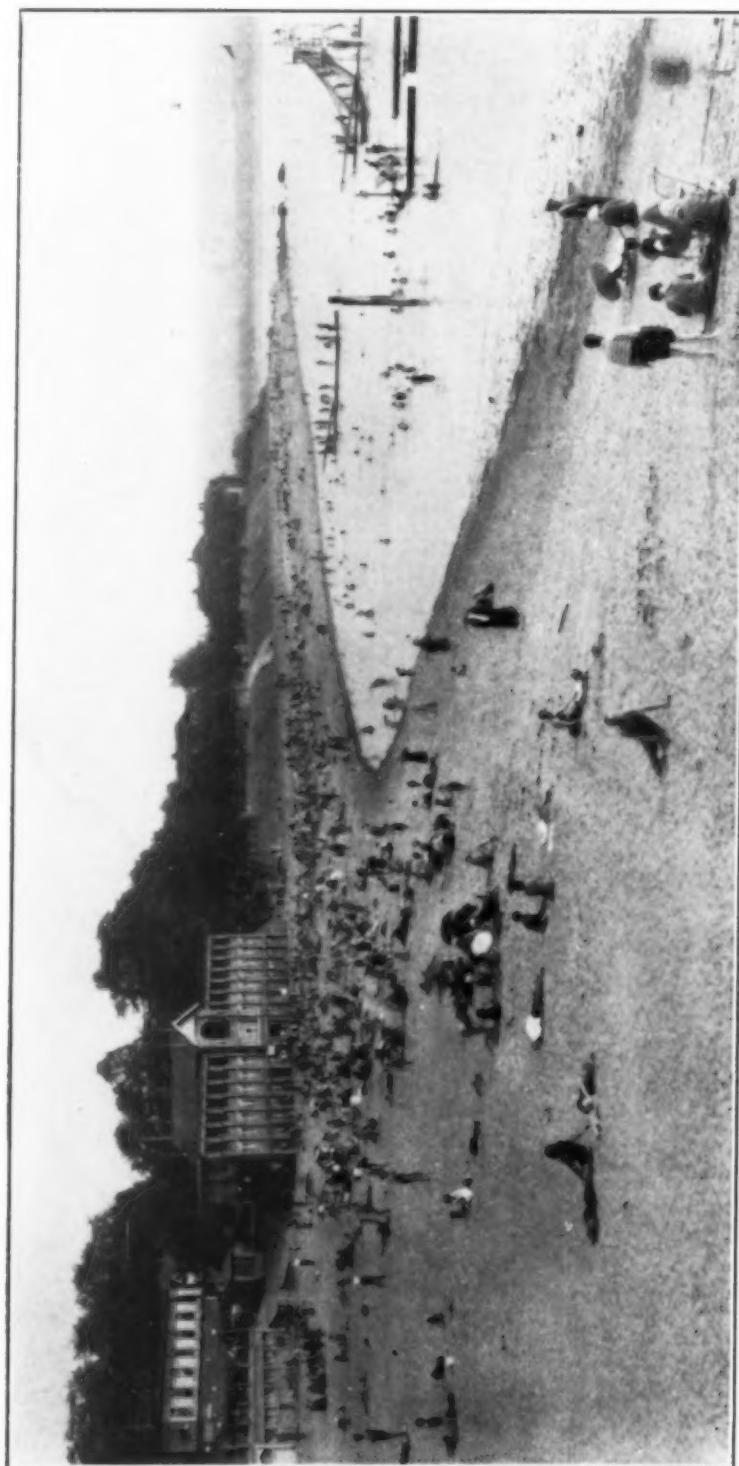
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Western Canada Airways photograph.
Four grain ships are here seen loading at Ballantyne Pier, Pool Elevator No. 2.



Canadian National Railways station, Vancouver, British Columbia.
Canadian Gov't Motion Picture Bureau photograph.



English Bay, one of the many beautiful beaches to be found within a few minutes' walk of Vancouver's business district.

Canadian National Railways photograph.



Leonard Frank photograph.

New Canadian Pacific wharves, Port of Vancouver.

(Continued from page 299)

holdings clear through to Lulu Island in the Fraser Delta. It was this occupation of land, coming to the ears of lumbermen operating at Alberni, which led to the establishment in 1863 of the first saw-mill on Burrard Inlet; the hamlet which grew around the mill being called, after its subsequent owner, Sue Moody, Moodyville. Two years later another mill was established on the south shore, about opposite Moodyville, and that place was called Hastings, after Admiral Hastings.

Then to the inlet came sailing ships from the Orient, South America and Europe. As many as 14 would be loading lumber at one time from the two mills. The inlet became lively with well-paid loggers, and with sailors ashore. But it was not until 1883 that the general public had any inkling of the great city which was to be founded between Hastings and Coal Harbour. In that year the directors of the Canadian Pacific Railway Company let it be surmised with authority that the line would be extended down the inlet from Port Moody, which then was, and still remains officially, the western terminus.

It took one Dutch Van with another to convey eventually the right name to the new city which was to be incorporated and have its centre somewhere west of Hastings. Captain George Vancouver was an Englishman of Dutch descent; and Sir William Van Horne, President of the Canadian Pacific Railway, was an American of Dutch descent. It was Van Horne who first advocated the name of Vancouver for the new city; and the first instance of the name as such appearing in print may be found in "The West Shore," a magazine at that time published in Portland, Oregon. In the issue of September, 1884, page 304, appears an article on Coal Harbour, over the signature of an enterprising young firm of real estate dealers in those days, Messrs. Gravelly and Innes. It followed the desire of Van Horne, and I quote this from it:

"It is only once in a lifetime that the public have such a chance as the present, and we would recommend those who have money to invest to investigate the merits of Vancouver on Coal Harbour before making other investments."

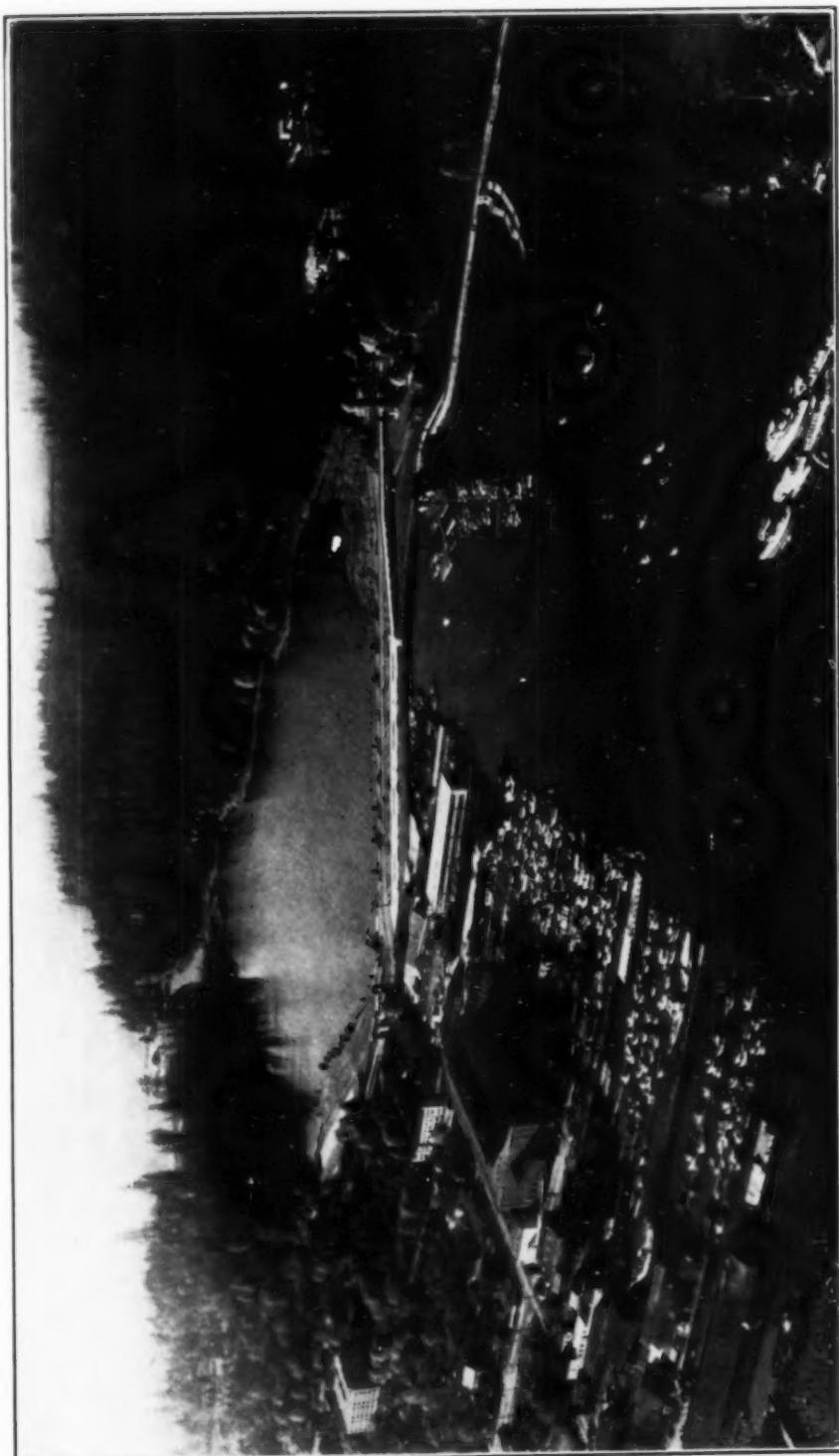
The City of Vancouver was incorporated April 6th, 1886. Two months later, June 13th, the quickly-built wooden town of 2,000 inhabitants was entirely destroyed by fire, with the exception of a few buildings around the Hastings sawmill. On May 23rd, of the following year, the first transcontinental train came down from Port Moody to Vancouver.

Naturally, during its first two decades, the Canadian Pacific Railway Company mothered and moulded the new city, which thus had all the inaugural advantages and disadvantages of a place under control of one powerful private company. Among the immediate advantages, apart from those involved in the fact of being made a transcontinental railway terminus, was the establishment of a magnificent fleet of freight and passenger ships to the Orient, Australia and New Zealand; and the erection of a first-class hotel and opera-house, both under the efficient management of the company. The disadvantages need not now be detailed. They were removed when, after much official obstruction, entry was provided in 1906 for the Great Northern and Northern Pacific Railways; and later by the entry of the Canadian National Railways, with new terminals, new steamships, and the promise, which this year is being implemented, of a metropolitan hotel on a par with any on the continent.

Owing to the small-town spirit prevailing during the time of the Klondike gold rush, much of the outfitting trade which should have gone to Vancouver, because of tariff advantages in its favour, went to more unanimous Seattle, which had been in a state of distress in 1896, but which quickly laid the foundations of a new prosperity on the Klondike trade and later on the Alaska trade. From 1906, however, to 1913, there were seven years of fast growth for both the city and port of Vancouver, its population increasing from 30,000 to 100,000 in that period. Then came the war.

During those anxious four years Vancouver came much to the front, not only by sending more fighting men to France in proportion to its population than any other city in Canada or the United States, but also in the way of supplying

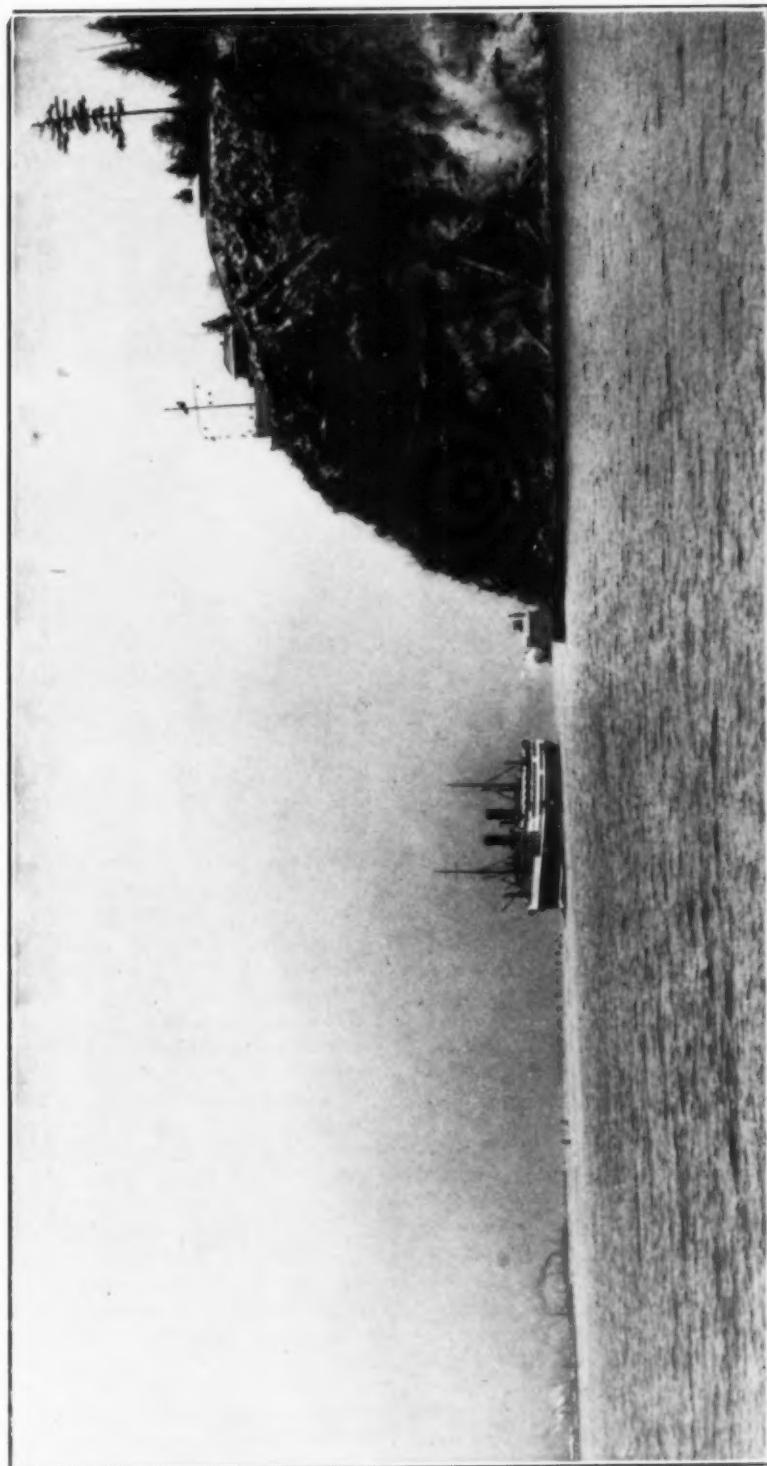
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Western Canada Airways photograph.
View of Coal Harbour and entrance to Stanley Park, with the yachts of the Royal Vancouver Yacht Club at their moorings. The narrow white building at right centre is the new aircraft factory of Boeing Aircraft of Canada, Ltd., while the large dark building is the Ice Skating Rink and Arena.



Western Canada Airways photograph.
Aerial view of Granville street looking south from the waterfront. Granville street is one of the main business streets of Vancouver. The two-funnelled ship is the R.M.S. "Aorangi" which makes the trip from Vancouver to Australia and New Zealand.



Leonard Frank photograph.

Prospect Point, Port of Vancouver.



Hastings street, Vancouver, British Columbia.

(Continued from page 304)

materials and food. Shipyards were built, and, outside of Great Britain, Vancouver became during this period the greatest shipbuilding port for steel ships in the British Empire. One of its shipyards alone turned out 21 steel ships, each over 8,000 tons dead weight. From the laying of the keel to the launching took only 70 days in some cases; and from the laying of the keel to the loading of cargo, all ready to sail, took only 91 days. Larger ships were built, and at less cost, than could then be done at any other port in Canada. From this it would seem that to meet the demands of the coming Pacific era shipbuilding may yet become one of the major industries of Vancouver. In this industry the Canadian Government should afford the same protection and give the same inducements to Vancouver that the American Government does to Seattle. The population of Vancouver and

suburbs in 1910 was in round figures 100,000; in 1920 it was 200,000; and this year, it probably exceeds 300,000. In 1919 from overseas came 328 ships to trade at the port; in 1929 the number had increased to 1,292, at least half of which came for wheat and flour.

Towards the end of 1924 the prophesy of outside observers, made variously for more than two decades, about Vancouver becoming one of the great grain ports of the world, began to be believed even by the local inhabitants. The swift development of Vancouver as a grain port during the past five years constitutes a romance of commerce. The farmers of Alberta and the Harbour Commissioners of Vancouver have worked hand in hand to that end. Vancouver now has seven terminal grain elevators in operation, one of which is the largest seaport grain terminal in the world, having a capacity of over five million bushels. It is owned by the Alberta Wheat Pool. The total

storage capacity of the port is 14,385,000 bushels, to which another 10,000,000 will be added within the next two years, as now contracted.

Within gunshot of the port is operated the largest low-grade copper mine in the British Empire, called the "Britannia"; with promise of another, called the "Oppergol" of equal capacity being developed within close proximity, and also on the seafront. High among the mountains of Greater Vancouver various lakes have been conserved, and brought under control with dams and tunnels so as to be able unfailingly to supply the entire water demands for a population of 3,000,000 people, including their industrial as well as domestic requirements.

The bulk of exports from Vancouver consists of wheat, flour, lumber, copper, lead, zinc, paper, pulp, apples, salt and canned fish. In another decade we may expect a larger output of manufactured articles. The imports are chiefly iron and steel, silks, wool, meat, butter, salt, tea, glass and oriental goods. Except for butter all these are likely to increase greatly in quantity; and raw silk may in time be manufactured here into the finished products.

If the present artistic scheme of town-planning to meet the growth of the city be carried into effect, and the present wise policy of the Harbour



*Vancouver's Great War Memorial,
on Victory Square.*

Commissioners be maintained and extended, then by the middle of this century Vancouver will equal Liverpool for business and Atlantic City for pleasure and become more mature and inviting than ever in her cool, green beauty!





Typical Gravel River Indian family on the overland (muskeg) route from Fort Norman, North West Territories, to the Mackenzie Mountains.

The Gravel River Indians

By FRANK EBBUTT

THE Gravel River Indians are an interesting people; they are decidedly nomadic in their habits and live almost entirely off the country. Their range constitutes a remote and little known section of the wilderness bordering on the Arctic Circle and lying between the Mackenzie River and the Yukon. In numbers they are only a few score, perhaps a hundred souls all told. Locally they are known as the "Mountain Men" as they range over the rugged mountainous country which constitutes the Mackenzie Mountains, the northern representative of the Rockies.

The Mackenzie Mountains are made up of a number of ranges which collectively are much wider than the Rockies at any other point in Canada, the maximum width being about 300 miles as against 70 to 90 for the Rockies proper. Elevations of 8,000 feet are recorded, but as the range is virtually unexplored it is quite likely that even higher peaks exist. Actually their appearance from the eastward would lead one to believe them higher; this deception is accounted for by the relatively low altitude of the Mackenzie lowlands which are only about 200 feet above sea level at Fort Norman. Much of the country adjacent to the Rockies proper has an elevation of 3,000 feet or so, which gives quite a start towards elevations of 8,000 which are common.

The names of some of the ranges and rivers of the area occupied by these "Mountain Men" when translated are of interest as a setting for such a people. The Sayunei Range interpreted means "Rocks of the Mountain Sheep." The Tigonankweine Range — "Backbone of the Earth." Bacotyeh, their name for the Gravel River, signifies "Meat Drying

River." This river which runs through the Mackenzie Mountains in an easterly direction forms one of the many large tributaries of the Mackenzie, which system is one of the ranking rivers of the world.

The Gravel River and adjacent country is probably the least travelled of any of the major tributaries of the Mackenzie.

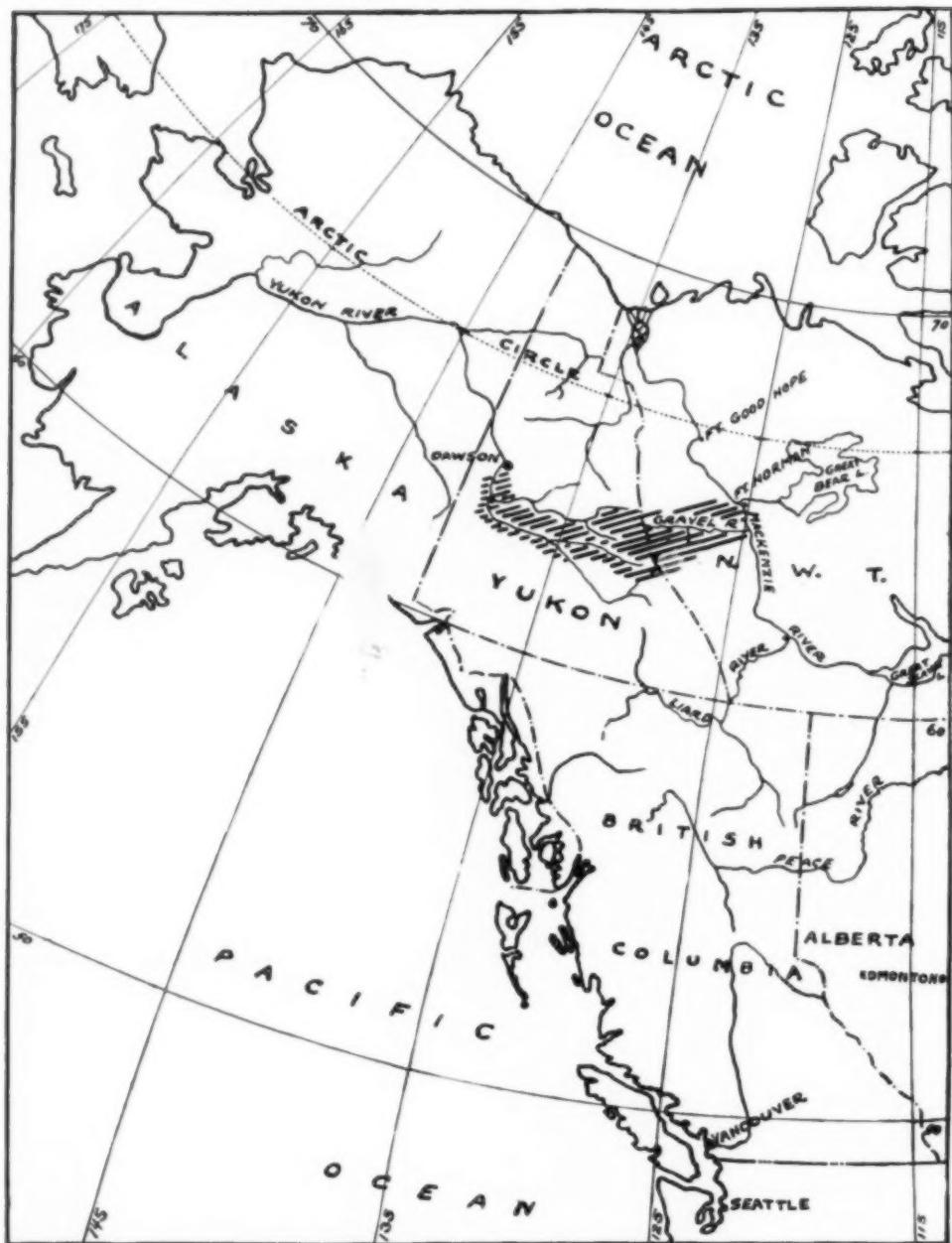
It is one of the least known areas in North America. The chief cause for this is the river's gradient; it rises on the height of land at an elevation of something like 4,500 feet, yet its junction with the Mackenzie is only about 200 feet above sea level. The result is a vicious rushing stream entrenched in deep formidable valleys and numerous canyons. At high water the river carries great quantities of sand, pebbles and at times and places even boulders. The river discharges from the eastern escarpment of the Mackenzie Mountains onto the Mackenzie lowlands some 40 miles west of the Mackenzie River. This lower section of the Gravel River forms a very effective obstacle to travel up-stream by canoe or any other type of river-craft. One of the



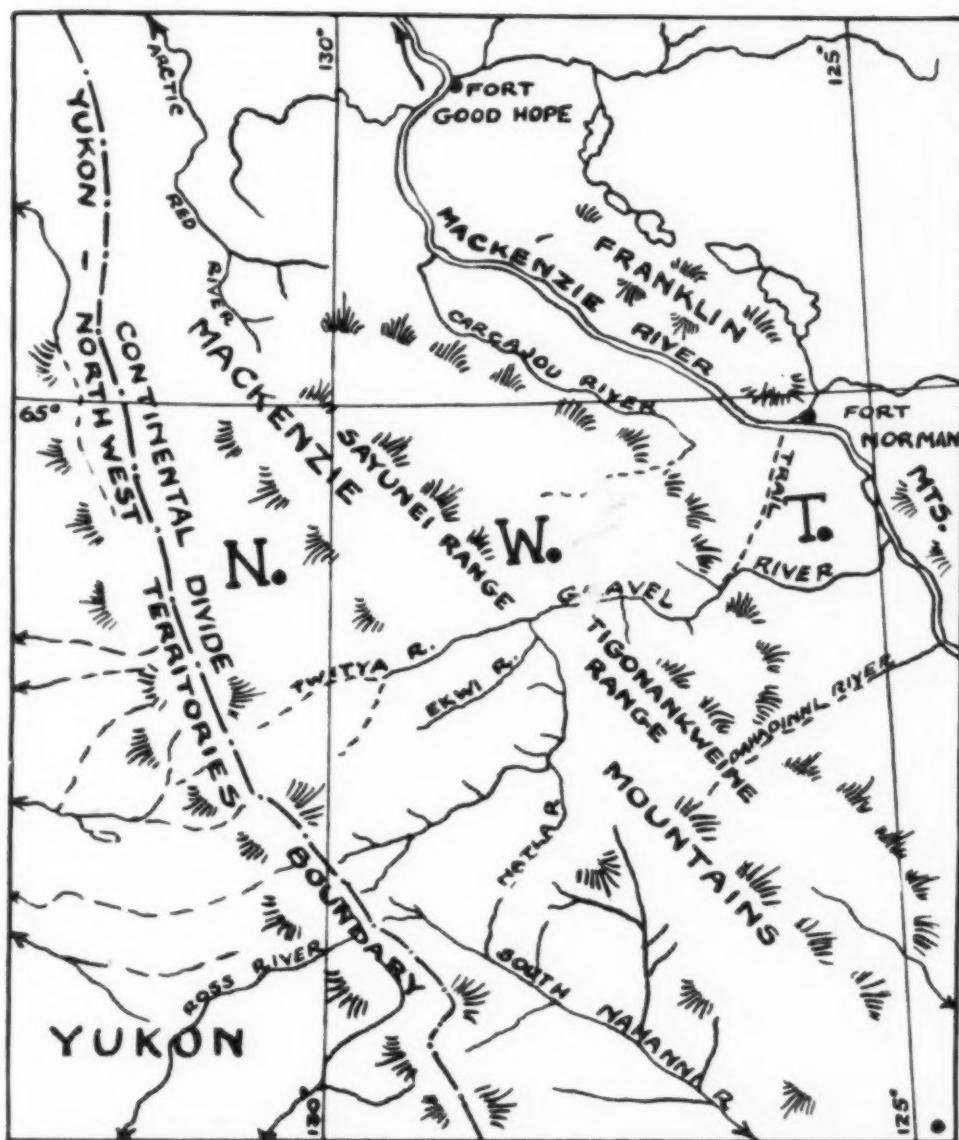
FRANK EBBUTT

who is a member of the Institute of Mining and Metallurgy, the American Association for the Advancement of Science, and the Association of Professional Engineers of British Columbia, was born in England in 1892, attended Sutton Grammar School, and came to Canada in 1907. He saw service overseas as a member of the Canadian Motor Machine Gun Corps, and on his return took up the study of geology at the University of British Columbia. Mr. Ebbutt spent three seasons in the Mackenzie Basin on reconnaissance work with Canadian Geological Survey parties, and since 1926 has been geologist of the Britannia Mining and Smelting Company.

worst examples of a braided stream is found at this part of the river. It is badly overburdened as it rushes from the mountains, and as soon as it hits the lowlands it attempts to drop this load, resulting in innumerable gravel bars and ever-changing channels, most of which are too fast to paddle against and too deep to permit of poling, forcing one to resort to "tracking" or lining up, which under such circumstances is an extremely difficult and dangerous task. When "tracking" the canoe is attached to the end of a long light hemp rope (tracking line), by means



Outline map of north-west part of North America showing area in heavy lines over which Gravel River Indians range. Scale 1 inch—200 miles.



Sketch map showing Gravel River country, Mackenzie district North West Territories, Canada. Scale 1 inch—50 miles.



"Peek-a-Boo" or "Pig-a-Back" through the Muskeg to the "Backbone of the Earth" and "the Meat Drying River."

of a bridle arranged in such a way that it keeps the canoe almost parallel to the man or men pulling the canoe upstream by means of the line. Everything goes well until bad cut-banks are reached and the channel has to be crossed and

tracking resumed along the shore of a bar till the bar ends and the gauntlet is run across the stream to another bar. This performance is repeated and so on until there comes a time when the tail-end of the nearest bar cannot be reached from the head-end of the one occupied. Then discretion is the better part of valour.

The Gravel River Indians or "Mountain Men" constitute, as mentioned before, only a small group. They are a branch of the Athabascan stock but seem better than the normal type, living more or less adjacent to them. They are heavy meat eaters while many of their neighbouring tribes live largely on fish. The meat eaters seem a more hardy rugged people; their expression is cheerful and they are well-nourished.

Game, both large and small, is relatively abundant in the region these people frequent. Moose are plentiful on the lowlands adjacent to the Mackenzie but are not so common in the mountains, being found only in the timbered valleys. The woodland cariboo are fairly numerous along the foot-hills and are easy to obtain as their curiosity always gets the better of them and they wait too long. Sheep are abundant in the mountains and the Indians get a great many of them every year; in fact, wild mutton constitutes the greater part of the people's diet, together with large numbers of rabbits. The latter are usually plentiful in any timbered section but periodically they die off in great numbers and in certain localities become almost extinct for short periods. During such



The water front at Fort Norman. On top of the bank may be seen Hudson's Bay Company post.

times many of the small fur-bearing animals migrate to more favourable districts with the result that the Indians' fur catch is light the following winter. Marten constitutes the bulk of the fur trapped, at least as far as value goes. They also get a few lynx, some mink, ermine, beaver, muskrats and fox. In some localities spruce partridge are numerous and afford some good "mulligans." Ptarmigan (a small grouse which turns white for the winter) are often very numerous and when roasted before an open fire nothing ever tasted better. The ptarmigan rely on "freezing" (sitting crouched and remaining perfectly still) for protection. This is especially true of the young ones who will almost allow themselves to be trodden on before making any movement. On several occasions in different parts of the country at high altitudes, the author has been able to place his hat over a young one and easily capture it. At such times the young bird does not show any great alarm but the parent birds become greatly excited, the hen often showing great courage and attacking the intruder at no small risk to herself. Certain varieties of ducks do much the same sort of thing as a means of protection. The young ones on the first sign of danger group themselves into a compact fluffy mass which remains perfectly motionless and allows itself to drift down-stream for all the world like clots of foam, which are common on many northern rivers. These little groups of young ducks will sometimes remain intact till almost run down by a canoe.



Indian child of the Mackenzie River district.

Good edible and game fish are plentiful in the smaller rivers; the lower Mackenzie and the Gravel River both carry too much silt ever to be good fishing. Some lakes are well stocked with trout and white fish. Most of the Indian fish-



Midnight on the Mackenzie River in July. Latitude 64 degrees north. Mackenzie Mountains in the background. The river is almost three miles wide here.

ing is done by nets or by "beating" small streams and driving the fish up to traps prepared beforehand. Herring run up the Mackenzie in large numbers some years, and the Indians catch large quantities of them. These people can eat fish long before it is cooked—the method seems to aim at boiling but the fish is taken from the pot and eaten usually long before the water is hot enough to scald the fingers.

The "Mountain Men" do not attempt to go up the Gravel River. Old timers, Hudson's Bay Factors and Indians alike,

some 10 or 12 raw moose hides are stretched and sewn on with sinew. All seams are treated with a mixture of spruce gum and wild mutton tallow. Slats are placed on the bottom, inside, a few thwarts act as cross-braces and as seats for oarsmen, of which there are usually four. Near the stern on the left side a large stiff rawhide ring is securely fastened to the edge of the framework, and a long strong sweep is used through this ring with which to steer. The sweeps arranged in this way are used to great advantage as a fair



Gravel River Indian woman and dogs packing through a land of little sticks, muskeg and Arctic dwarf birch.

will tell you it cannot be done, and the Indians know for they negotiate the river down stream in skin boats but return by an overland route. These skin boats are each and every one a masterpiece both in design and workmanship when one considers the materials at hand and the tools available. A framework from 25 to 30 feet long, from six to seven feet wide, and roughly four feet deep, is made of hewn spruce. No nails are used in the construction of this frame everything being lashed very securely with raw moose hide. Over this frame

leverage is obtained. In the centre of the boat a short mast is fixed and twisted rawhide ropes are carried from the mast-head to both bow and stern and also the sides. These ropes are twisted until tight as fiddle strings. The result is a very serviceable boat. Being elastic they do not suffer hard knocks and since they are light in relation to size they are easily handled in fast or dangerous water. When the boat is being run through a canyon or bad boulder rapid a picked man is stationed in the bow of the boat armed with a stout pole with which

he fends the boat off bad rocks or snags. There is something almost Viking-like about these people and their boats. The chosen man in the bow makes quite a figure with his pole and usually with a red rag or handkerchief bound round his forehead to keep the long dark hair from his eyes. The next figure of importance is the helmsman at the long sweep; he must needs be a good river-man, too,—observant, active and quick to decide on his course. The four men at the oars or rather side sweeps must act together and obey the quick command of the man in bow or stern, otherwise control of the boat is lost and disaster is inevitable. The several women and children and the

is one of the events of the year both from a social as well as a commercial standpoint. Fort Norman is located at the junction of the Great Bear River and the Mackenzie, both main arteries of travel in that region. The white population of Fort Norman can usually be numbered on the fingers of one's hands—a Hudson's Bay Company factor, two or three rival traders, a priest or sometimes two, a detachment of three or four Mounted Police, one or two white trappers and the odd transient surveyor or prospector. The arrival of the "Mountain Men" at Fort Norman is carried out with much ceremony. The priest and representatives of the various fur trading companies



The "residential district," Fort Norman, North West Territories. The arrival of the Indians is one the events of the year at this northern post.

number of dogs that make up the passenger-list must remain quiet and calm. A good supply of spruce branches are placed on the bottom of the boat, and the duffel, dry meat, the season's catch of fur, etc., is placed on this. Any fresh meat on hand hangs over the stern where it keeps cool and is out of reach of the dogs. The journey down the Gravel River in these skin boats is made in easy stages, many stops being made to hunt and dry meat. The meat is cut into flat thin pieces about a foot and a half long and a foot wide and wind dried, practically no smoke being used.

The skin-boat brigade arrives at Fort Norman about the middle of July and it

gather on the beach and as soon as the landing is made all the senior men are kissed first on one cheek and then on the other in the most approved French ceremonial style. This is usually followed by a free-for-all between the local dogs and the dogs of the visitors, which does not last long, however, as the local dogs are no match for the meat fed dogs of the Gravel River people. The various traders cater to the "Mountain Men" as they have their season's catch of fur, moose skins, dried meat and many bladders of fat to trade, and as these Indians do not run debts no one has any strings on them and they will sell or trade with the highest bidder, each indi-



"Mountain Men" landing at Fort Norman. In the construction of these skin boats, not a nail is used, all the parts being lashed securely together with raw moose hide.

vidual obtaining as nearly as possible his heart's desire—a new rifle, a year's supply of cartridges, tea, tobacco and a few other oddments. One young woman was seen trading a rather poor marten skin for two cans of sausage which were opened on the front steps of the store and eaten on the spot with much relish. The spruce boughs which were loaded in the bottoms of the skin boats are now placed on the ground and make fair beds. The majority of the Indians along the Mackenzie usually do not bother with such luxuries but sleep on the "boulder pavements" on the odd blanket or a few moose skins. Dog choruses are the order of the day at the Fort about this time. Some gaunt dog will set up a long-drawn-out wail which in turn will be

taken up by the rest of the large canine population until a regular bedlam is reached, dying down as suddenly as it began only to burst forth again at irregular intervals with renewed vigour. The quietest and most peaceful portion of the day is the few hours after sunrise during which time both dog and man sleep; very little sign of life will be seen till after 10 a.m., yet everyone will still be visiting or gossiping at three or four in the morning. It must be remembered that the sun sets only for about an hour at this time of year and there is not even a pretense of darkness. These long days work wonders with the few small gardens of the village. The priest usually has a very fine garden and gets good crops of potatoes, cabbage, carrots,



The "Mountain Men" or Gravel River Indians in moose skin boats on the Mackenzie River after successfully navigating the treacherous waters of the Gravel River.

raspberries, red currants, etc. Potatoes are ready for the pot in eight weeks after planting, or even less some years. A good serving of new potatoes is the height of hospitality on the Mackenzie, various dried varieties being used most of the time.

On the east bank of the river a few miles south of the village is a small seam of lignite coal outcropping. This seam has been burning for a good many generations. Alexander Mackenzie mentioned it as being on fire when he made his historical journey to the Arctic Coast in 1789. The Indians have a mythical explanation for this fire that has lasted so long and without attention;

group moves across the Mackenzie (which at this point is some four miles wide) and makes camp on the west bank. Here they remain for several days and most of the food bought from the traders is eaten and any surplus baggage is cached or thrown away, as no luxuries are taken over the muskeg route that leads to the mountains. Finally the start is made and all the dogs are packed. This is quite a task as pack-dogs like pack-horses are hard to handle the first day or two, but both become manageable after a few days hard work. Not only are the dogs packed, but everyone, even quite small children carry something. Children too



A team of Hudson's Bay Company dogs, Fort Norman. The expressions are due to a porridge pot in the hand of the author.

"Once a very big beaver travelling up-stream, stopped at this place, and camped. Through an accident he upset a pan of grease into the fire with his tail. The fire flared up badly singeing his tail, he was so vexed that he told the fire to burn forever". Fossil leaves are common in the shales adjacent to this burning coal seam and many of them have become baked like terra cotta brick and are beautifully preserved.

After a stay of perhaps two or sometimes three weeks at the Fort the "Mountain Men" start making preparations to return to their "Meat Drying River." Gradually things are put in order and finally without any seeming haste the

small to travel are carried, as are the pups. Only the bare necessities are taken but even these for a year amount to quite a lot. Tea, tobacco and cartridges are the three important items. What Indian does not enjoy tea and tobacco? For that matter, most woodsmen like their tea and tobacco as much as the Indian. Even to-day some of the old Hudson's Bay men speak of distance as "so many teas!" meaning they stopped to make tea so many times along the way.

The overland trail to the mountains and the "Meat Drying River" is a heavy tiring trail to travel, traversing a broad belt of slightly rolling, sparsely

wooded muskeg. At every step one sinks several inches in oozy moss and tangles of dwarf birch and Labrador tea clutch at one's legs below the knees. The air is damp and hot at this season and laden with hosts of mosquitoes. The Indians travel by easy stages camp being made early in the afternoon. Almost as soon as the halt is made the boys and some of the younger men strike out in all directions, each with a large number of rabbit snares carefully arranged on a short stick in a manner not to become tangled. These snares are set on all frequented rabbit runways, which are seen everywhere in good rabbit years. The snare is attached to the end of a spring or balanced pole to suspend the rabbit, when caught, clear of prowlers. By the time the rabbit-catchers return to camp the women have bivouacs made, fires going and all the dogs unpacked and tied. The dogs are tied for several reasons—they are inveterate thieves and will snatch anything that even looks like it might possibly be edible; they will start



Another Indian woman and her "pack train." Note the size of the loads on the dogs and the business-like bow.



Young "Mountain Man" packing litter of pups too small to travel through the muskeg.

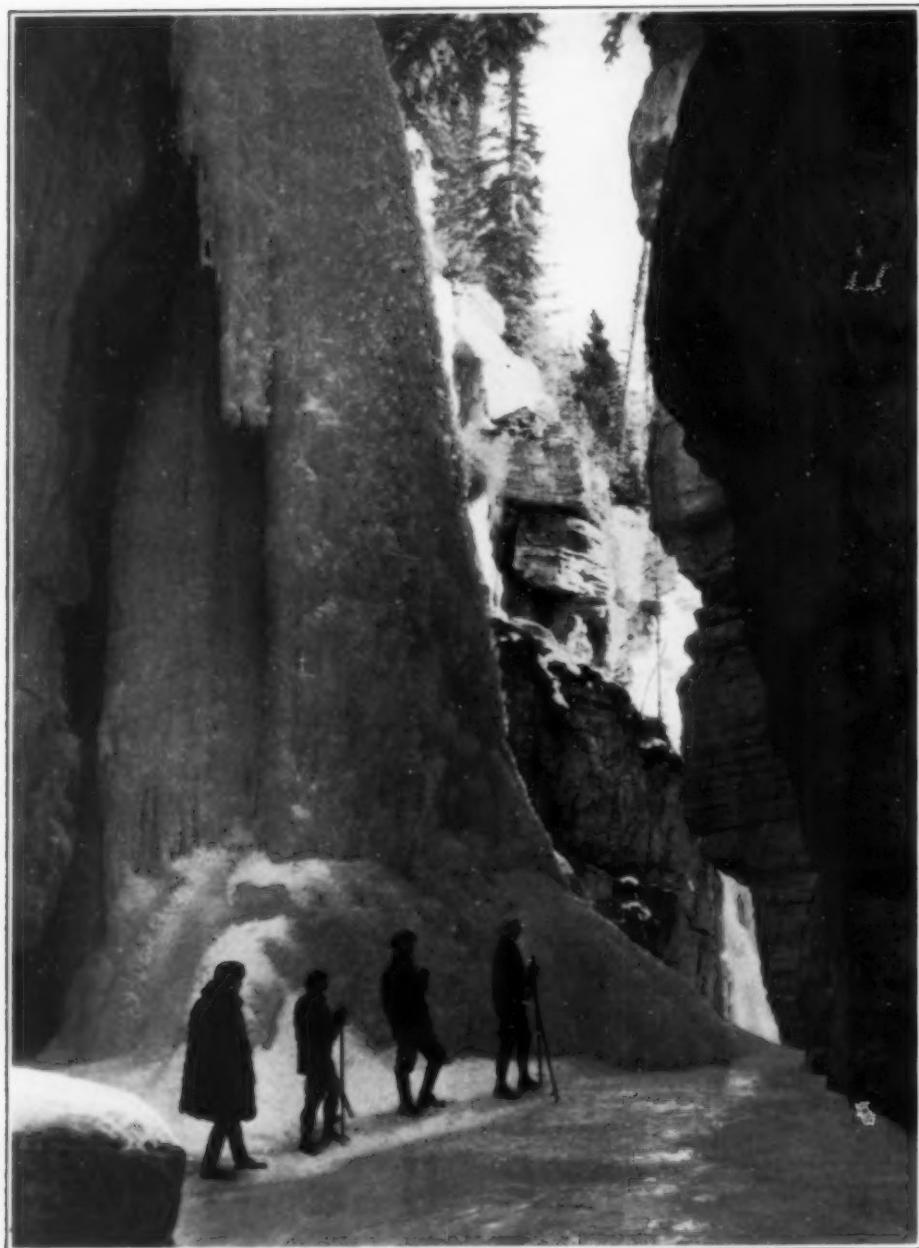
a snarling snapping fight which soon involves large numbers without any apparent provocation and without waiting for the drop of a hat; if loose they would get caught in the rabbit snares and if possible rob them of their prey. Nowadays it is only in the very remote districts at high latitudes that one sees dogs packed, yet in Pre-Columbian days many, if not all tribes, packed dogs; as at the time of the Spanish Conquest there were no horses in existence in America. Horses did exist in America but prior to the advent of man on the continent. The northern Indians have in most cases never seen horses. Many tribes have no word for horse in their vocabulary. The "Mountain Men" have none, and until the Imperial Oil Company took a horse to their oil well below Fort Norman to be used for skidding casing, these people had not seen a representative of man's most useful animal. This single imported horse created a great impression and was viewed with much awe, the people marvelling at the way it ate weeds and

brush with evident relish. They thought it should be fed on dried meat or fish like their dogs. There are several reasons why these northern tribes do not use horses, chief among these being the lack of suitable grazing land, the long hard winters and the mosquitoes. Dogs carry from 25 to 45 pounds each and a good dog is held in high esteem by its owner and often valued at \$100 or even more. On the trail the women do most of the dog handling and it is a job calling for much patience, particularly in warm weather and on soft, wet mossy ground, as it is hard on even the best dogs and they require an almost constant goading. Most of the women when on the trail use some form of staff. Some carry long bows and arrows with which they get occasional spruce grouse or other small game. The country occupied by these hardy

people is one of the last frontiers. Some day there may be important discoveries of mineral in those mountains or "Rocks of the Mountain Sheep" and civilization may for a time put its finger in the pie but civilization will never conquer these remote mountains as it has some of the other rugged sections of the world, for example, the Alps. The climate of the Mackenzie Mountains will never lend itself to pastoral pursuits. Extremely low temperatures are reached in the long winter, and fall comes early and suddenly. It is a section where men match their puny strength and keen wits against nature and often lose. The survivors are those who obey nature, go round dangerous places, den up during fierce storms, await the passion of a swollen river to subside, and never buck their luck, but always bide their time.

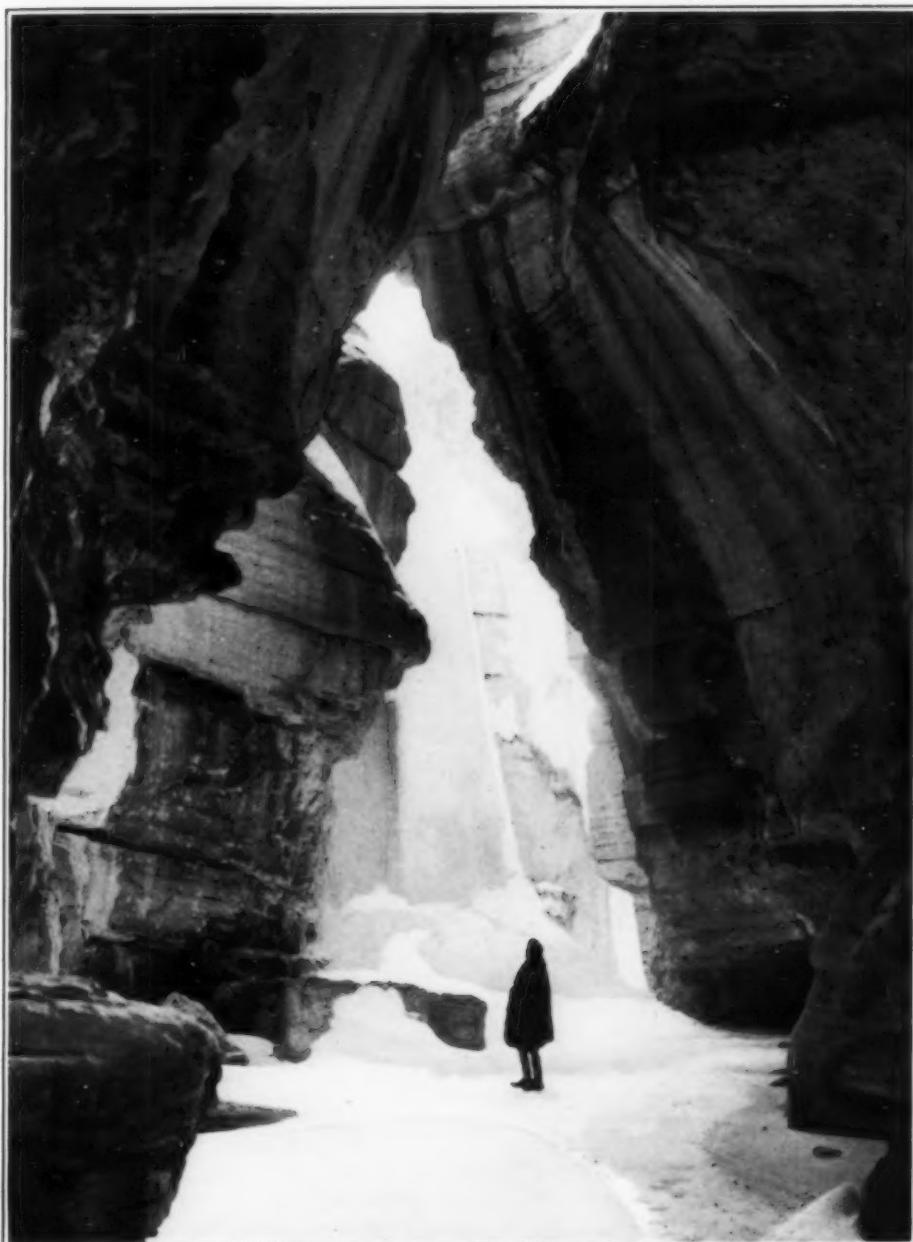


Great banyan tree, Calcutta, 601 grounded aerial roots, 1000 feet in circumference, 80 feet high.



Canadian National Railways photograph.

The Maligne River, in Jasper Park, the northernmost of Canada's magnificent mountain playgrounds, is nothing if not spectacular. One assumes that it rises in Maligne Lake, that most exquisite body of water in whose sapphire depths are reflected the peaks and pinnacles of a score of snow-crowned giants, and actually flows out of Medicine Lake, but when one has ridden around to the northern end it is to find that Medicine Lake has no apparent outlet. Following the trail, one comes presently upon a series of springs gushing out of the hillside, and realizes the Maligne has travelled underground from Medicine Lake. From the springs it rushes tumultuously down to the valley of the Athabasca, ending in the amazing Gorge two views of which are given in the accompanying photographs. The



Canadian National Railways photograph.

Maligne Gorge offers a memorable spectacle either in summer or in winter, but probably the latter is the more impressive, particularly on a day of bright sunshine, when the sombre walls of rock are covered with a veneer of glittering ice, and the Gorge suggests nothing so much as the palace of some awe-inspiring Genie of the Mountains. Conan Doyle must have had the Maligne in mind when he wrote the lines:

*"I shall hear the roar of rivers where the rapids foam and tear,
I shall smell the virgin upland with its balsam-laden air,
And shall dream that I am riding down the winding, woody vale
With the packer and the pack-horse on the Athabasca trail."*



Above the city of Rangoon glitters the towering Shwe (Golden) Dragon Pagoda, the finest and most sacred place of worship in Burma, land of the teak industry. Shoeless and with profound respect, the traveller approaches through the courtyard shown above, while from the roof comes the tinkling music of hundreds of gold and silver bells. The pagoda is constructed mainly of carved teak.

The Romance of Teak

By L. H. BAKER

ASURVEY of the Empire's industries will fail to reveal more romantic associations than those connected with the lumber industry of Burma.

This beautiful and little known Province of the Indian Empire is famous as the principal home of that most magnificent species, the teak tree of commerce. A long way behind in production come Siam, Java, and the State of Cochin on the west coast of India.

To-day the forests of Burma are the property of the State, and the local government reaps a princely revenue from the royalties on the export of teak wood and the numerous other splendid species, many, alas! little-known or appreciated by the outside world.

To fully calculate the importance of this great industry, which supplies the British Government with magnificent baulks and squares of timber, utilized in the construction of battleships, and also contributes the timber for decking most of the ocean greyhounds, and other vessels of the world's mercantile marine, one must be acquainted with the expensive organization required to exploit these tropical forests.

The methods in use are entirely different from the usual practices in modern forestry extraction, and of course quite unlike our Canadian methods. To begin with, the local government does not assign a timber limit en bloc to a lessee, but puts up from time to time large forest drainages to public tender.

The company offering the highest rate of royalty per log of 30 cubic feet, and a lesser rate for logs of a smaller size, may be the successful bidder, and, provided the government is satisfied, they can successfully carry on operations. Thereafter the timber still remains the property of the government, until almost in its final progress it has reached the rafting

stations where it is measured log by log, by the Divisional Forest Officer or his deputy, and thenceforth, having been duly passed by the pass hammer, the great rafts are released as the property of the company, and continue their leisurely progress down the mighty Irrawaddy to Rangoon.

Until the royalty has been paid the company is entirely responsible for all timber felled. As here in Canada, so in Burma, hot weather fires may do a great amount of damage and vast sums are spent annually by the lumber companies, protecting many thousands of logs lying in the arid beds of dried-up, sandy rivers, waiting the welcome burst of the all-embracing south-west monsoon and the torrential rains, which will once again fill the rivers.

Failure to provide proper fire protection may result in incalculable damage, and the companies are liable to be mulcted in a fine of \$7.20 for every log lost by fire.

In thinking of the forests of Burma, one must endeavour to visualize a terrain so cut up with mountains, hills, rivers, and ravines, that the possibility of even

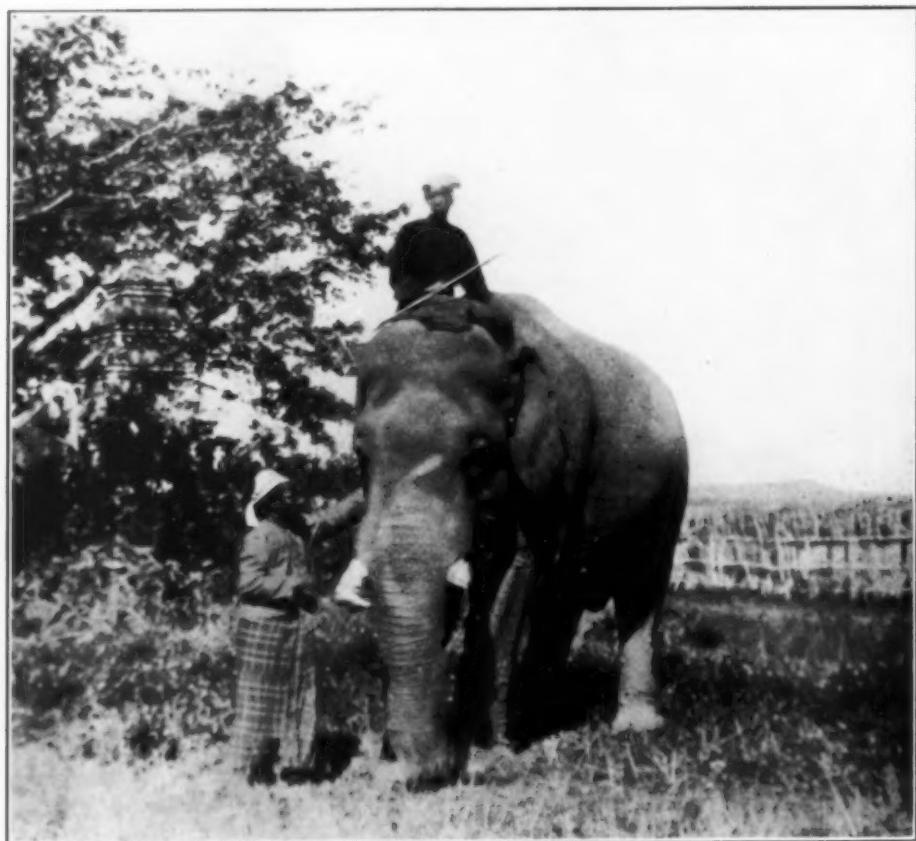
exploring this great wealth along up-to-date lines becomes impossible. Of an area roughly computed at 250,000 square miles, 160,000 square miles are made up of forest, great trackless areas devoid of anything resembling a road, and for six months of the year almost impassable to man or beast, owing to the terrific rainfall.

There is, however, one great beast, the elephant, which seems to thrive in and enjoy the reeking heat of these dense jungles; jungles where every crawling and creeping thing that nature has created to produce a suffering humanity, breed in countless myriads, where the anopheles assumes



L. H. BAKER,

who now lives in Canada, spent 25 years in close contact with the Burmese, 17 years as an officer in the forest service of The Bombay - Burma Trading Corporation, and eight years as a planter on the Shar Plateau.



The finest animal the author came across in 25 years' experience. Only by daily contact with these wonderful animals does one arrive at a proper knowledge of their worth.

dimensions undreampt of, and where scorpions, centipedes vie with leeches in making the life of the forest officer a thing unimaginably dreadful to those whose lives are laid in pleasanter places.

To our aid, then, comes the lordly elephant, the only beast which can solve the problem for the great companies of how to extract the logs from the deep ravines or inaccessible ridges which hold them captive as in a vice, and where the teak tree seems to take a special delight in lodging.

Machinery is out of the question because of the absence of roads, and the fact that the country is knee-deep in mud and water for nearly six months of the year.

The very nature of the forests precludes the use of horses or even oxen for extraction work, both by reason of the

lack of fodder, and the inaccessible nature of the districts to be exploited. The government lessees possess great herds of elephants.

The principal company engaged in the industry is the possessor of about 2,000 full-grown elephants, and 500 youngsters, and as we may put an average price on these animals of \$2000 apiece, we can easily calculate that this one company has \$4,000,000 tied up in elephant flesh.

The great mortality risk in such an enterprise can be understood. There is no insurance to cover loss amongst these herds, other than that provided for in a sound financial system in an annual writing down of the value of live stock, and we find from one cause and another that the companies lose somewhere near 10% of their herds a year,



Transport elephants having an early morning bath. In order that they may be able to perform the arduous work in the teak forest, the elephants require constant care and attention.

chiefly from that most dreaded of all diseases, anthrax, which makes its appearance in the hot weather, April and May and creates a serious gap in the ranks of those noble beasts.

There are few more pitiful sights than these great animals in the last throes of that dread disease. Silently they suffer, but constantly rising and squatting in the strange attitudes peculiar to elephants.

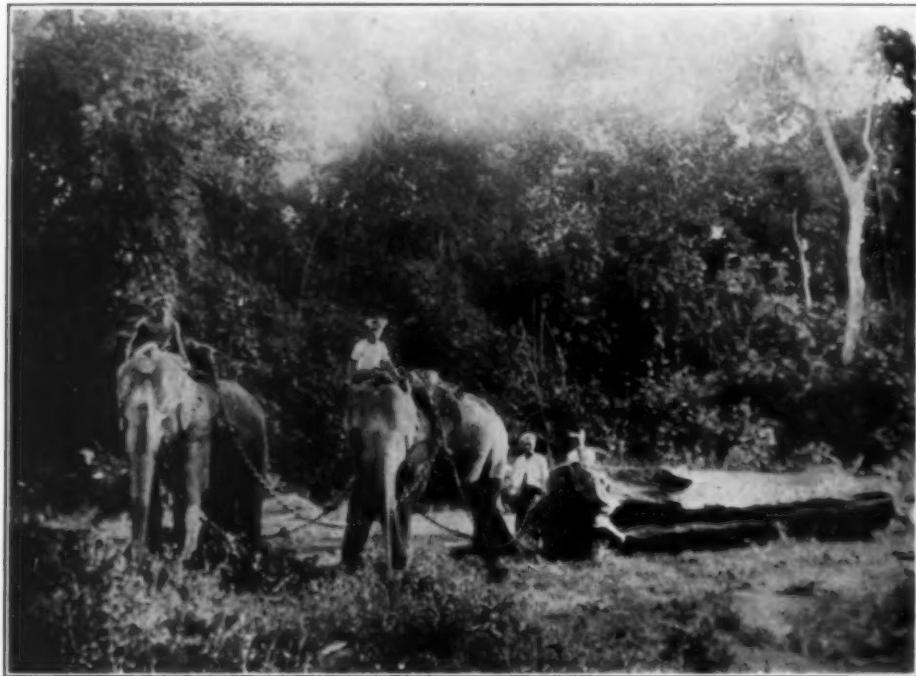
They may linger from one to three days whilst the fever rages or in more severe cases they may be dead in the same number of hours. The writer of this article lost 19 elephants in the Mansi Forest Division of the Katha District in the hot weather of 1912, all dying within six weeks.

The following curious incident is worth recording as a proof of the intelligence of the elephant.

An outbreak of anthrax was suddenly reported and almost immediately the "Choung Oke" or Headman, discovered the carcass of a wild female elephant, which had not been dead more than a few hours. Standing by the carcass of its mother was a young female elephant, who very shortly after fell a victim to the attacks of a tiger.

The dead female was one of a large herd, which frequented a great expanse of wild banana jungle, rising up to the heights of Toung Thon Lone, a prominent mountain in the district where one could always expect to come across wild elephants.

The results of this death were remarkable, in that it was the only one recorded amongst the wild herds, who immediately trekked away from this fine grazing ground, away out of the district altogether, as though aware of the fate that



A pair of first-class tuskers dragging a log to the river bank. Drag-holes are cut in the log and into these the chain is inserted.



One of the foremost elephant trainers for the teak industry.



Not the least of the work of an elephant is "ounging" logs off the sand banks into the river.



A three-ton log is not a light load, but two elephants are sufficient to move it.



After being killed, the tree is left for two years to dry, and is then cut down.

would overtake those who lingered behind.

Given ordinary good luck, we may look to the elephant, even when working as hard as he does in the teak forests, to reach a fine old age. He will not be broken in to hard work until 25 years of age, and he will be at his best between 50 and 60 years, and should go on possibly to 100.

He works for three days and rests for two; his usual working hours are from daylight until about noon.

As soon as the day's work is over, the herd, of about seven as a rule, is marched back to camp, where the heavy chains are removed, and after the fore feet are fettered the great beasts are turned loose into the adjacent jungle to forage for themselves in the luxuriant vegetation. Evidence with what relish they instantly commence feeding is heard in the crashing bamboos, as they pull them down with their powerful trunks, tearing the succulent vegetation from the thick stems in great bundles and stuffing them into their great mouths.

An elephant requires an amount of food equal to the load he could carry, which in the case of a big animal would



By means of these "travellers" one reaches the teak forest, far removed from civilization.

be about 600 to 700 pounds a day, and he would probably damage as much again in his passage through the jungles, or amongst the plantations of the unfortunate villages where he is prone to wander during his nightly peregrinations.

The commencement of the rainy season sees all ready to start the year's work. The Forest Officer may have as many as 150 elephants in his charge, divided up into 20 camps, and in order to keep in touch with these he must be constantly on the move.

In drenching tropical rains, blazing sunshine, or the chilly cold of an Indian dawn, the Forest Officer must be as hard as nails. Inured to a loneliness that can almost be felt, often the only white man in a district of five or six thousand square miles, living on a restricted diet, mostly supplied from England in tins, one may wonder what the life has to offer, and how it is that the companies are always able to recruit excellent men from Great Britain.

The answer is in the charm of the jungle, the lure of the Orient—memories of these cold-weather mornings, when with the advent of the north-east Monsoon, in November, one forgot the miseries of the long-drawn-out rains, the



Once duly marked by the pass hammer, the great rafts are released as the property of the company.



A scene in the Rangoon timber-yard. One would think these elephants endowed with human intelligence as they pick out the centre of the log, kneel down, push their tusks beneath it, and rising, steady it with their trunks and carry it away.

malaria that racked aching bodies, and awoke to fine a cold November morn, bathed in dew, the splendid sunshine chasing the mists from the sodden land and making Burma one of the most beautiful places in the world. From the nearby forest a jungle fowl crows lustily, and away across the paddy fields the raucous call of the peafowl is heard, while in the distant villages the temple bells echo amongst the surrounding hills.

During the rains, the great teak logs are brought from the hills by the elephants, stupendous feats of climbing often being necessary before the animals can get to the precipitous heights on which the logs are perched. It is no infrequent thing for the sun to be high in the heavens and blazingly hot before the elephants have reached the summit of the hills, to commence their labour, so steep and difficult is the country.

Short work is soon made of what was once a shapely tree—the Pejaik, or foot follower, fixes the great chains into the drag hole and with his mighty shoulders thrown into his belt, and all the bulk of his great weight behind him the splendid beast slowly moves the great log.

A fair average-size log will be about 75 cubic feet or equal to one and a half

tons, though the writer has seen a single log weighing seven tons and valued at about \$1,000 which it took seven big elephants to move.

The greatest strain in this extraction work is felt by the animal in the first process of dragging the logs from their original resting place amongst all the slashings and debris of the forest, but once free of those obstructions the great beasts will drag their load fairly easily down the gentle slopes of the ridges to the steep hill sides.

Then the Pejaik releases the chains, and the intelligent animals proceed to push the log down the cleared chute of the hill sides, with their tusks, following down the most difficult inclines and constantly keeping the timber on the move, and freeing it from obstructions until it reaches flat country.

At the foot of the hills the elephant's job is done, for it is the skilled labourers of the forest, and now, unless the drag to the river is a short one, the services of water buffaloes are called in.

About six pairs of those ugly brutes will take the log which a single elephant has so dexterously brought from the far-away hills and drag it the remaining distance, over perfectly flat country to the streams.



There is only one way of bringing the teak log from forest to mill and that is by floating it down the river. As green teak will not float the first step is to kill the tree. This is done by cutting a ring through the sap-bearing wood.